

The Magazine for LEGO® Enthusiasts of All Ages!



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Brick

Issue 31 • November 2014

Journal

people • building • community

Spotlighting
**LEGO® Bricks of
Character**
with Iain Heath
and Tommy
Williamson

Featuring
Mike Dung
Annie Diment
Eero Okkonen
Kevin Ryhal
Nick Vas
Shawn Snyder

**Instructions
AND MORE!**



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One of Mike Dung's creations.

Photo by Mike Dung

About the Contents:

Iain Heath's LEGO version of Ellen

DeGeneres' selfie. Photo by Iain Heath.

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From the Editor:

This issue is about Bricks of Character, or character sculpting in LEGO. This fan theme has only been around for a few years, but examples have been around since Miniland characters were built at LEGOLand Billund (Denmark). More recent builds have gone into many different directions, including life-size busts as done by Shawn Snyder, and Calvin and Hobbes as built by Adam Dodge. Both of those are seen here, as well as other characters that you may or may not know.

What makes all of these so wonderful is that LEGO is a very challenging medium for this kind of building. A character builder has to take his or her subject and convert it to a LEGO model, which in many cases means making a curved form fit into the LEGO system of building. It takes patience and practice to build these types of models. The results, though, can be astounding and inspiring. Many thanks to Iain Heath and Tommy Williamson for their help with this issue.

There's other great things in this issue too, so have fun reading and building!

Joe Meno, Editor

P.S. Have ideas or comments? Drop me a line at admin@brickjournal.com. I'm open to suggestions and comments and will do my best to reply.

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Glossary

AFOL (Adult Fan of LEGO)

NLSO (Non-LEGO Significant Other)

MOC (My Own Creation)

TLG (The LEGO Group)

BURP (Big Ugly Rock Piece)

LURP (Little Ugly Rock Piece)

POOP (Pieces—that can be or should be made—Of Other Pieces)

SNOT (Studs Not on Top)

LUG (LEGO Users Group)

LTC (LEGO Train Club)

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People

The Cathedral of St. Francis of Assisi

*Interview by Joe Meno
Photography provided
by Tony Sava*

Tony Sava is a husband, father of two young builders, and an Internal Auditor for Kinder Morgan Inc. In addition to building with LEGO bricks, he likes to dabble in photography and making smoked barbeque.

He started building when as a child, “My grandparents gave me first LEGO set 6385 Fire House-I sometime when I was around six years old, but I didn’t really get into playing with LEGO in any major way until my parents gave me 6081 King’s Mountain Fortress. I didn’t have too much of a dark age to speak of, though I didn’t really start moving away from building only sets and start building MOCs until my mid- to late- teens. Well into college, in July of 2000, I joined Lugnet and became an official Adult Fan of LEGO and have been actively building ever since.”

When asked about what kind of models he builds, he answers, “I used to build exclusively Castle MOCs, but I’ve since moved onto building Trains—primarily steam engines. To a lesser extent I build Town as well, but mostly as a backdrop to my trains.”

One his most ambitious models is the Cathedral of St. Francis of Assisi, which has been shown at train shows and most recently at Brickworld 2014. Here, he talks about how he built his model.



A minifigure view of one of the stained glass windows in the cathedral.

BrickJournal: *What inspired you to build the church?*

Tony Sava: I've always wanted to build a big Gothic Cathedral. In spite of my switch from Castle to Trains, I've retained a love for Gothic architecture. It wasn't until I was an adult, and in fact when I had stopped building Castles, that I had enough spare grey bricks and funds to attempt such a huge MOC. I have seen many inspiring LEGO Cathedrals over the years, and truth be told I have borrowed many techniques from these other builders to build my own.

What church is this inspired by?

My Cathedral is inspired by two real-life Cathedrals. The general floor plan is based on St. Patrick's Cathedral in New York. I was able to find a diagram online of St. Patrick's floor plan, complete with columns and buttresses. Using photo editing software, I overlaid the floor plan onto a field of LEGO baseplates and used that to plan the rest of the build.

Chartres Cathedral in France is the other inspiration for my build. St. Patrick's is a beautiful building, but it is built in a Neo-Gothic style, meaning it lacks the flying buttresses and overall overwhelming "greebles" that Gothic Cathedrals tend to have. Chartres was not only built in the Gothic style complete with flying buttresses, but it is also notable for having asymmetrical bell towers. Just about every LEGO Cathedral I've seen has had symmetrical towers, and the thought of following the road less traveled was very appealing.

How long did it take you to build it?

All told about 6 months. I spent several months simply planning the build. After I created the floor plan

overlay, now knowing how big the building would be, I began scaling out the different features. Knowing how many windows would be on each wall, I was able to calculate their widths, how far apart the pillars would be, how many pews I would be able to fit inside. I studied other MOCs and tested out different building techniques, making note of the ones I thought would be a good fit. After that I began making Bricklink orders in preparation of the build.

Actual construction took about four months, occasionally slowed by the lack of parts (my local LEGO store and its Pick-a-Brick wall helped a lot with that) and unexpected design challenges I had not yet addressed. Throughout the process I uploaded Work In Progress photos to Flickr, asking for input from online AFOLs in an attempt to both improve my MOC and my repertoire of building techniques. As a builder, I tend to get a little lazy and complacent, so having this outside influence really helps to drive me to be a better builder.



A side view of the cathedral, showing more windows and detail.

Below: A rear view.



What parts did you enjoy building?

My favorite parts of the building are split between the little details and the big complex builds. For example, the North Spire (the bigger one) was incredibly challenging and made me want to pull my hair out, but it was a lot of fun testing out the different ideas for a round, tapering structure. The Ambulatory and Apse (the round part of the Cathedral on the opposite side from the towers) was the same way—trying to come up with a “curved” roof with the fewest number of holes, while simultaneously making sure it looked good on the inside, too, was an enjoyable challenge.

The little details were fun too—like the furniture, the altars and the pipe organ. I studied real Catholic Cathedrals and tried to incorporate all the hallmarks of what makes a Cathedral. I included the Stations of the Cross, a baptismal font, a confessional, a low and high altar, a ciborium, a tabernacle, and most importantly the Cathedra. The Cathedra is the seat of the Bishop; in the literal sense it’s his chair, and it’s from where we get the word “Cathedral.” I also built specific minifigs for my Cathedral, including my Bishop—Salvatore Tudless (you know, S. Tudless). I also built a bride and groom for public displays.

Most Cathedrals have reliquaries or places where relics are stored. In my cathedral the reliquaries are little rooms that line either side of the nave, and I decided to have a little fun filling them with some not-so-serious relics. Among the items found in my Cathedral are the Holy Grail, the Lost Ark, C3PO’s head, a floating Gold Brick,



A look at the interior of the cathedral.



The cathedral organ.

The Carbonite of Turin (the Han Solo in Carbonite brick, a reference to the Shroud of Turin)—and what collection of relics would be complete without a Minikit build piece from the *Star Wars* LEGO video games?

What was the hardest part of the building to do?

Aside from the North Spire and the Ambulatory and Apse, the hardest part was probably just getting started. When you dream up the idea to build something at this scale, something this size, it can be quite the daunting task. I have several large scale builds that I've started in the past, and I either never finished them, or when I did finish them I felt they were so rife with faults I couldn't appreciate the MOC as a whole. I'll sit there and wonder—can I do it? Can I really build this? What if I fail? What if I'm just not good enough to finish it? Self-doubt is something I've always struggled with, with LEGO and in real life. I've learned that sometimes jumping in with both feet is the only way to really conquer such thoughts, and thankfully more often than not I've been pleased with the results.

How do you display it, since the interior is so hard to show?

Before I began building, while still in the early planning stages, I knew I wanted to create it with a full interior that could be viewed when on display. I wrestled with several different options, but finally settled on splitting the Cathedral into four, two-baseplate sections. The first (entrance and spires) and fourth (ambulatory and apse) sections were easy enough to design, but splitting the



Testing lighting.

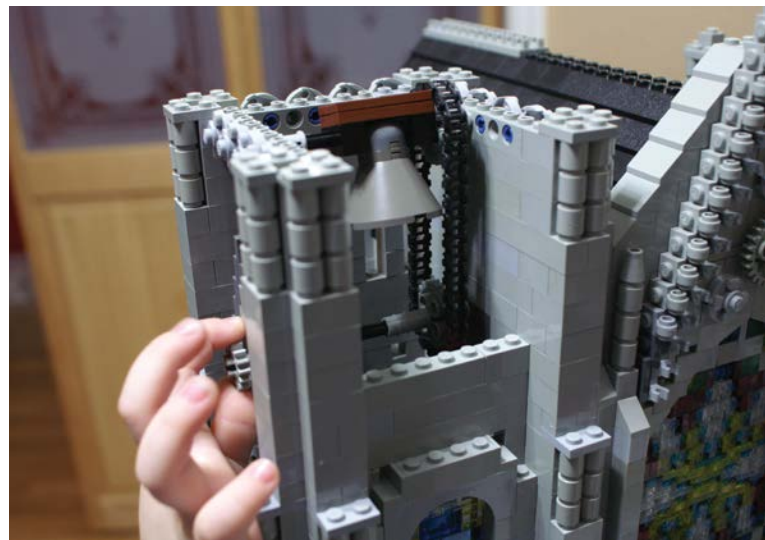
second and third sections (the middle) required some interesting solutions.

I have displayed the Cathedral open and closed, with and without lights. When closed, I sometimes fill the Nave with a strand of LED Christmas lights. This really lights up the “stained-glass” nicely, and because the lower windows light more vibrantly than the upper windows, it really gives a sense of the Cathedral being full of candles.

When open, I sometimes pull all four sections apart, spacing them evenly across a table. I’m not a huge fan of displaying it in four sections because it tends to ruin the overall look from the outside, but it does allow full access to the interior. Lately I’ve been leaving the Cathedral in two larger parts, splitting it between the second and third sections. A little bit of the best of both worlds, I guess.

How is it transported?

To the shock and amazement to most, the Cathedral sits on a piece of scrap plywood in the back of my truck. That’s it. I remove the two spires and some of the parts that tend to fall off easily, but everything else just sits in place. The four sections are individually heavy enough that they tend to stay where I put them, even on long road trips. My truck bed has a locking fiberglass cover, so I don’t have to worry about weather or vandalism. A few folks have offered to build me some crates to store/transport it in, and I do plan to take them up on the offer. Until then, though, my scrap plywood stands ready.



Operating the swinging bell.




Another detail shot of the rear.

How has the public reacted to it?

Public reaction has been overwhelmingly positive. Most everyone who sees it comments on how beautiful the stained glass looks, and simply how massive it is. I've even had folks recognize the inspirational Cathedrals, most notably St. Patrick's. Occasionally my club will do a show where we're near a window, and typically in the evening the sun will shine through the windows of the venue and into the Cathedral. Photography usually increases about that time. If I'm able, I usually show off a few of the features, like the swinging bells and the interior. My club-mates have been supportive of it too, though they do find it hard sometimes to find room for it in our layouts. Its sheer size usually dictates just about every feature of the city section of our train displays, and does tend to overshadow smaller MOCs.

What are you proudest of with the church?

I suppose the thing I'm most proud of is completing a project of such immense size and detail. It's certainly not the biggest MOC I've ever attempted, but it's the most detailed, most complete, and most "finished." Since I don't have boxes in which to store it, it sits on one of my build tables between shows. I frequently find myself looking at it and questioning myself—"Did I really build that?" I have to confess I sometimes even find little parts of the build that are particularly complex and think, "I really need to remember this technique, that could be useful." 




Calvin and Hobbes TM & © Bill Watterson.



Adam Dodge posted this sculpture online, which was immediately posted on leading blogs. *BrickJournal* contacted him and was able to make instructions.

When asked about this creation, Adam explained: "I made this Calvin and Hobbes in response to someone wanting to buy a Calvin and Hobbes creation from me. Not wanting to part with the amount of bricks in my original model, I put together this smaller, more iconic image and gave that away."

This is a great Bricks of Character creation that not only captures the look of the classic cartoon characters, but also shows the whimsy that the *Calvin and Hobbes* strip (and LEGO) has. Enjoy building! 

People

Building Calvin and Hobbes

*Design and Photos
by Adam Dodge
Instructions by Joe Meno*



Parts List

(Parts can be ordered from Bricklink.com by searching by part number and color)

Calvin

Qty	Color	Part	Description
2	Black	42446.dat	Bracket 1 x 1 - 1 x 1
1	Tan	3024.dat	Plate 1 x 1
2	Red	3024.dat	Plate 1 x 1
2	Black	3024.dat	Plate 1 x 1
2	Sand Purple	3024.dat	Plate 1 x 1
2	Tan	4073.dat	Plate 1 x 1 Round
1	Yellow	3023.dat	Plate 1 x 2
1	Black	3023.dat	Plate 1 x 2
2	White	3023.dat	Plate 1 x 2
2	Tan	3023.dat	Plate 1 x 2
1	Tan	3794b.dat	Plate 1 x 2 with Groove with 1 Centre Stud
1	Tan	3022.dat	Plate 2 x 2
2	Red	3022.dat	Plate 2 x 2
2	Black	3022.dat	Plate 2 x 2
1	Red	87580.dat	Plate 2 x 2 with Groove with 1 Center Stud
2	Tan	54200.dat	Slope Brick 31 1 x 1 x 0.667
4	Yellow	54200.dat	Slope Brick 31 1 x 1 x 0.667
2	Black	3665.dat	Slope Brick 45 2 x 1 Inverted
2	White	3070b.dat	Tile 1 x 1 with Groove

Hobbes

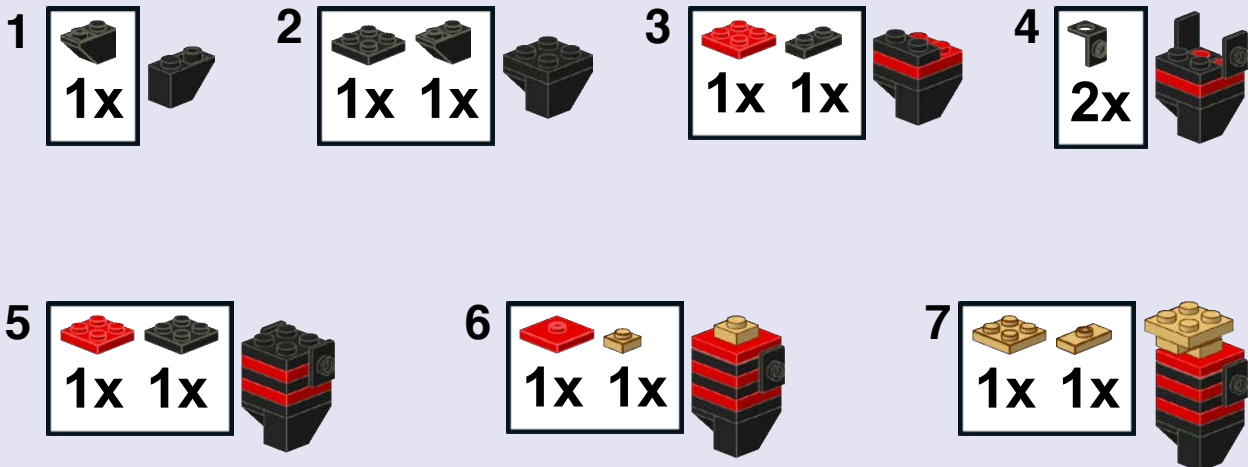
Qty	Color	Part	Description
2	Black	42446.dat	Bracket 1 x 1 - 1 x 1
1	Black	87087.dat	Brick 1 x 1 with Stud on 1 Side
2	White	87087.dat	Brick 1 x 1 with Stud on 1 Side
4	White	3004.dat	Brick 1 x 2

Qty	Color	Part	Description
2	White	2877.dat	Brick 1 x 2 with Grille
1	White	3024.dat	Plate 1 x 1
1	Orange	3024.dat	Plate 1 x 1
4	White	4073.dat	Plate 1 x 1 Round
16	Black	4073.dat	Plate 1 x 1 Round
18	Orange	4073.dat	Plate 1 x 1 Round
2	White	4081b.dat	Plate 1 x 1 with Clip Light Type 2
2	White	49668.dat	Plate 1 x 1 with Tooth
4	White	3023.dat	Plate 1 x 2
8	Black	3023.dat	Plate 1 x 2
16	Orange	3023.dat	Plate 1 x 2
2	White	3794b.dat	Plate 1 x 2 with Groove with 1 Centre Stud
2	Orange	3022.dat	Plate 2 x 2
2	White	4032b.dat	Plate 2 x 2 Round with Axlehole Type 2
1	White	87580.dat	Plate 2 x 2 with Groove with 1 Center Stud
1	White	3700.dat	Technic Brick 1 x 2 with Hole
1	Blue	4274.dat	Technic Pin 1/2

Tree Trunk

Qty	Color	Part	Description
2	Reddish Brown	87087.dat	Brick 1 x 1 with Stud on 1 Side
9	Reddish Brown	3941.dat	Brick 2 x 2 Round
2	Reddish Brown	3024.dat	Plate 1 x 1
2	Reddish Brown	3666.dat	Plate 1 x 6
4	Reddish Brown	2420.dat	Plate 2 x 2 Corner

Calvin



8 **1x 1x**



9 **2x 1x**



10 **2x**



11

1 **1x** 2 **1x 1x** 3 **1x**

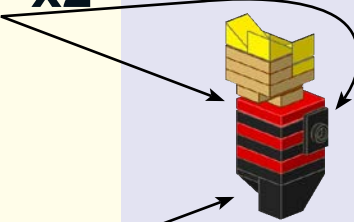


x2

1 **1x** 2 **1x 1x**



x2



Hobbes

1

1 **1x** 2 **1x**



2

1x 1x



3

1x



4

4x 2x



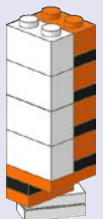
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4x



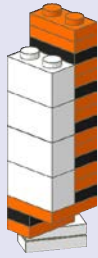
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7

1x
2x



8

2x

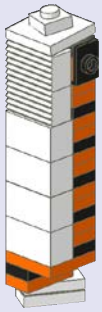


9

2x



10



1

2x 1x

2

1x 1x

11



1

2x 1x

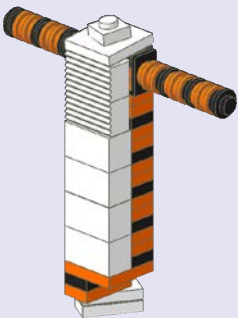
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12



1

2x 1x

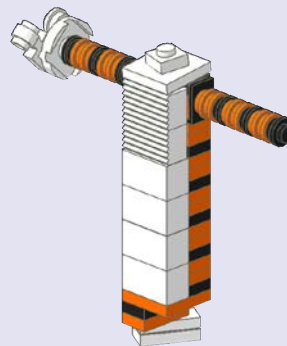
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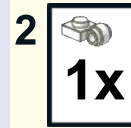
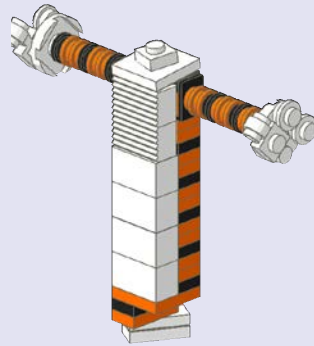
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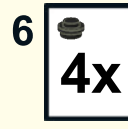
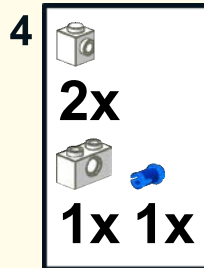
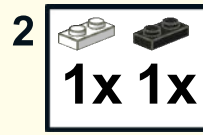
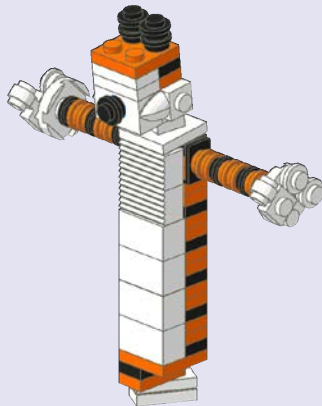
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1x

13



14



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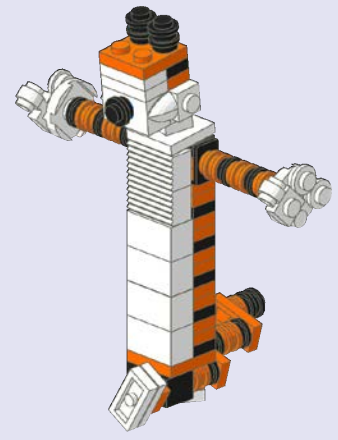
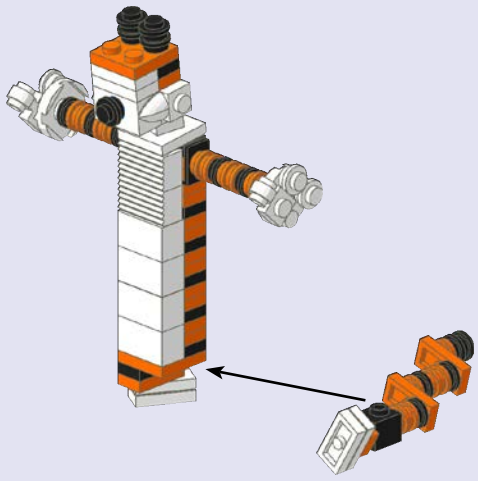
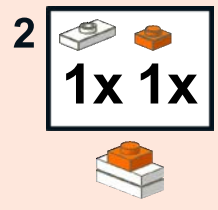
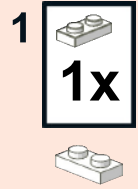
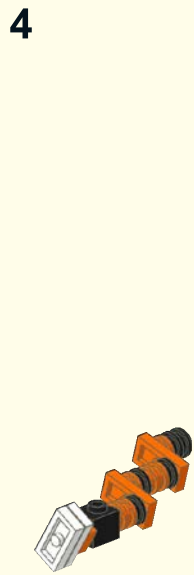
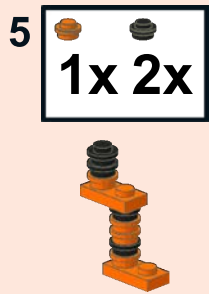
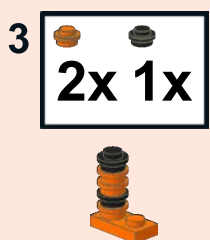
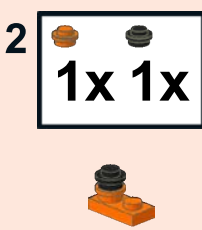
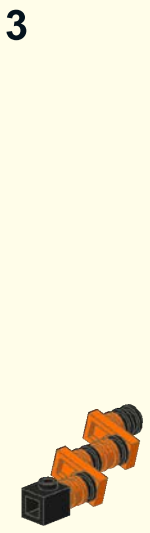
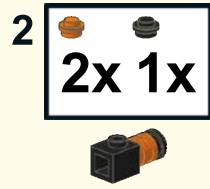
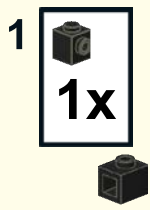
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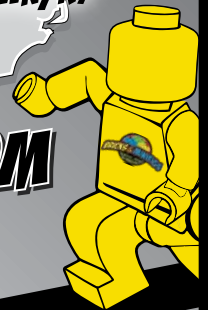
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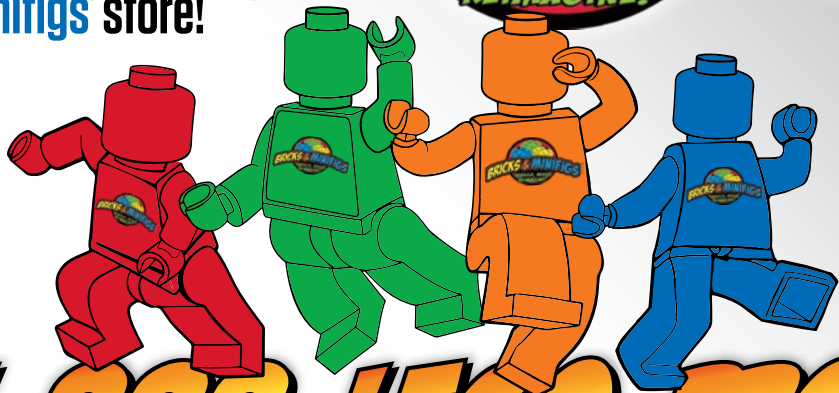


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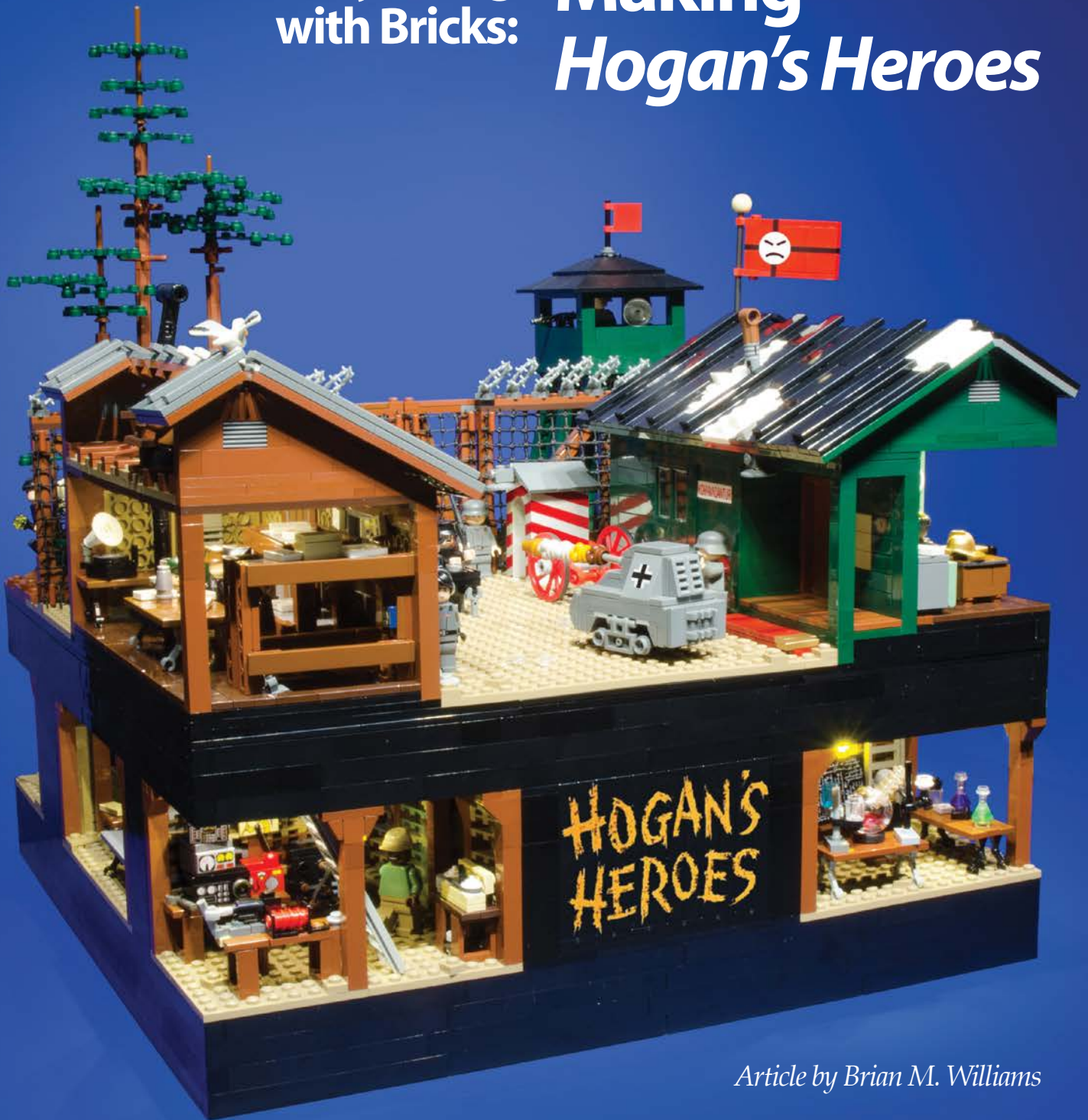
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Storytelling with Bricks: Making *Hogan's Heroes*



Article by Brian M. Williams



Lights on!

They say that great art is born of struggle. And while my *Hogan's Heroes* diorama may not rise to the level of, let's say, the *Mona Lisa*, it certainly had a difficult birth. For starters, there was only 3.5 weeks of build time when this diorama was built for the 2013 Annual Flickr Military Build. Then there were the contest requirements that it be only 48x48 studs and be built as an interior. As I pondered these requirements, my son was watching *Hogan's Heroes*, an old TV sitcom about a German POW camp where the prisoners operate a secret espionage and sabotage organization. It occurred to me that such a subject might make a good MOC. The show was funny, popular, and can still be found in reruns today. And all the tunnels would provide a set of interconnected interior scenes. Best of all... it had a good story to tell.

The Design

I started by researching the show to determine the most popular episodes and scenes. Then, using this information as a guide, I prioritized the most frequently appearing characters, locations, and vehicles. After this it became a game of *Tetris* trying to fit everything into the available space. The show had strong characters with unique uniforms... so viewers would have no problem

identifying the individual minifigs. The locations were colorful, distinctive, and most importantly, they appeared in most episodes, so even if a viewer only saw one episode, they could recognize the MOC. And the tunnels connected everything both horizontally (under ground) and vertically (to the surface locations). But best of all, each location had funny stories, gags and gadgets which appeared in multiple episodes. I created three designs of varying size and estimated the cost and build time. Selective compression was used and repeating structural elements removed (eg. only a single window need be shown on the barracks). In the end I chose the medium design due to time constraints, and partly because that's all which was needed to tell the story. Every single brick in a MOC should contribute directly to telling the story, and all others should be ruthlessly discarded.

The Build

The lower portion is built hollow on a single 48x48 stud baseplate. I had worked out the room sizes and structural supports on paper beforehand. But once the tunnels were in place, I took pause to validate the viewing angles. This led to some size adjustments and structural reinforcements. The tunnel walls are built from



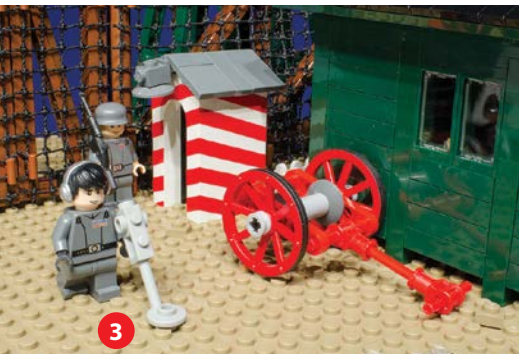
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Barracks 2 was the home to Hogan's crew where they would listen to secret conversations using a loudspeaker in a coffee pot. There were many other secret gadgets they employed including the special drop bunk leading to the tunnels below.



2

Sergeant Kinchloe's extensive radio room includes the hydraulic jack used to raise the antenna (left), wireless (rear), and a small phone exchange (center). The wire recorder to the right was featured in the episode "Top Secret Top Coat."



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The tiles on the roof of the guard's house are held together using clips. The stripes are stickers. The red wagon is firefighting equipment.



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HOGAN'S HEROES

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(Left) Colonels Hogan and Klink share a couple fine cigars courtesy Klink's own locked humidor (on the desk) which Hogan effortlessly opened on many occasions. The photo of the object of the TV series' ridicule in the background featured an actual microphone which Hogan's crew would use to eavesdrop on Klink's office.

(Right) Sergeant Carter's homemade explosives lab. The ladder in the rear accesses the stove in Klink's office.



5



The team had their own tunnel entrance just outside camp disguised as a tree stump.



Next to the stump was a special periscope which the prisoners would use to check to make sure the coast was clear.



Hogan always got the girl... in this case it is agent "Tiger" as they discuss a raid in the wardrobe area complete with sewing machine, cutting table, and shoe racks.



(Left) Hogan's attic is where the prisoners take whatever lumber they can find to shore up the tunnels. OK, so this scene was really from "The Great Escape," but who's really paying attention?



The prisoners ran out of places to dispose of dirt from the tunnels. So they put it where the German guards would never think of looking: in Klink's attic!



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Colonel Klink's living quarters were featured in many episodes, often hosting visiting dignitaries... or special lady guests. Often prisoners were pressed into service as cook (Lebeu) and waiter (Carter).



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It's a little hard to see in here but there are film racks, an enlarger, and various cameras, etc.



13

There were so many tunnels down there—some large. In at least two episodes the prisoners managed to assemble portions of entire aircraft in the tunnels. Here is the Armory featuring many stolen munitions.

20

lapped wedge plates in dark tans with occasional layers of brown. I was concerned that the color scheme might not have enough contrast, but it turned out just fine. The ground level structures are composed of studs-up posts and lintels with SNOTed 4x8 panels to give the horizontal siding texture. Initially I planned to cover the back of the plates inside with stickers, but eventually decided the interiors looked fine as is.

Custom Decals

Custom decals were printed for the building signs and interior details. Sadly I ran out of time to do the torsos so many of the figures, as first photographed, were plain torsos. Eventually I printed these as are seen in this article. The production of the decals is beyond the scope of this article, but I do want to emphasize they add a great deal to the atmosphere and detail. More significantly, stickers enable viewers to recognize the characters, which is an important part of the storytelling. Incidentally, the decals are reproduced faithfully from the TV show, including a couple German spelling errors.

Lighting

Many of the show's episodes featured nighttime scenes which heighten the drama. And the tunnels themselves were always dark. So I knew that lighting would be critical to the MOC and settled on two goals: First, to provide general illumination for the dark recessed rooms so the details could be seen, and second, to create atmosphere. Brickstuff lights install quickly and use ultra-thin wires which fit between plates, simplifying cable runs and allowing tight construction. Each room has a single Brickstuff lightbar installed which has two warm-white LEDs to soften the shadows. For atmospheric lighting, I used Brickstuff warm-white micro light boards connected to a Brickstuff LEC to "flicker" the oil lamps in the tunnels. These really add to the mood. Additional micro light boards were used for the compound lights above. For the searchlight, a barrel LED was hand soldered as it required a narrow angle.

Punchlist


People often ask me is there anything from the show which was left out. Certainly. For starters, the Motor Pool, Rec Hall, and Water Tower locations were popular but there was no room for those. Same with the Hoffbrau house in town. Then there was the stock footage of that railway bridge they must have blown up a dozen times. Beyond these locations cut from the design, there are a couple items which didn't make the initial contest deadline, but which were completed later. These included the custom minifig stickers, and the Mercedes 6-wheel staff car.

Reception

Hogan's Heroes won first place in the 2013 Flicker Annual Military build, small diorama category. Afterwards I was considering recycling it. But I changed my mind when I saw the positive public reaction at the NILTC Christmas show. At Brickworld 2014 it won Best Vignette. Many of the younger viewers watch the show today on vintage TV stations or the internet. But what really surprised me was the interest level among people who have never seen the show. Part of this



Nighttime at Stalag 13.

appeal is due to the detail and subject matter. But what really draws people in is the storytelling. It's the characters and what they are doing that makes *Hogan's Heroes* the MOC, like the TV show, so entertaining. 



The Cast left to right: German General Burkhalter, German Major Hockstetter, Italian Major Bonachelli, German Secretary Helga, German Colonel Klink, French Underground Agent Tiger, German Sergeant Schultz, American Colonel Hogan, Russian Agent Mayra, American Sergeant Carter, French Corporal LeBeau, British Colonel Crittendon, American Sergeant Kinchloe, British Corporal Newkirk.



The stove in Klink's office rotates to access a ladder leading down to the tunnels.



The Allied prisoners had tunnels all over the camp with many hidden access points, including in the kennel where the dogs were made tame. Also shown to the left is the periscope for the sink in Barracks 2.

Building

Minifigure Customization 101: 3D Resolution

by Jared K. Burks



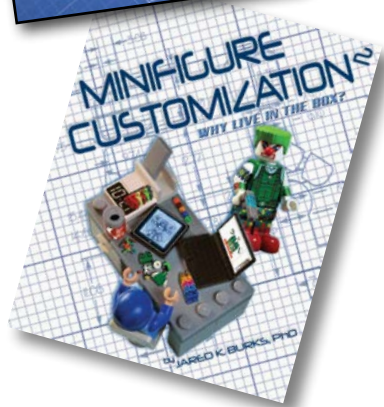
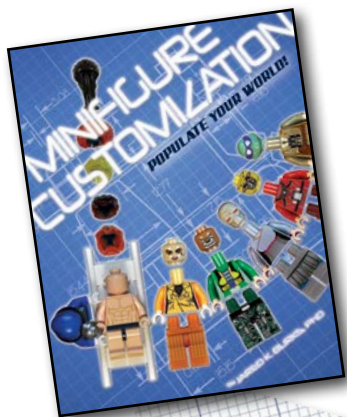
Link created with custom printed 3d parts designed by Michael "MINGLES" Inglis, painted and decaled by Michael "Xero" Marzilli, featuring custom decals created by Jared Burks. Photo by Jared K. Burks.

3D printing is a method of rapid prototyping, which involves creating digital 3D objects and 'printing' them by having a printer lay down successive layers of a material. Objects manufactured using this process can often be extremely detailed and include awkward shapes. Other manufacturing processes, such as metal injection molding, cannot easily manufacture these awkward shapes without multiple molds. The process of 3D printing allows a minifig customizer to physically make a 3D model without having to deal with extremely large production costs and minimum orders. The rate at which these models can be ordered and received is merely a matter of days with companies such as Kraftwurx and Shapeways.

How do you know if 3D printing is right for your LEGO project? Well, it typically boils down to resolution: specifically, print resolution. Will your printed part hold the design details you have created in your 3D file when printed to LEGO scale? In this article, I will discuss the differences in print materials and resolutions from two of the major commercial sources: Kraftwurx and Shapeways.

Previously, this article series has discussed creating your own 3D files for printing. This article appeared in *BrickJournal* #19 (June 2012). The 3D files from this previous article will be presented here printed in different types of materials and different resolutions as examples. As with anything in life, you get what you pay for: higher resolution materials will be more expensive. You will need to balance the expense of your project against the desired quality.

The materials that can be produced by a 3D printer are extensive. Shapeways and Kraftwurx, the major commercial leaders in 3D printed parts, currently provide metals, plastics, glass, ceramics and sandstone. An exhaustive examination of all the printable materials is beyond the scope of this article. Both manufacturers offer very informative sections of their websites on the materials they offer; if you want to try something out of the mainstream, please visit their sites and community sections for more details.



Don't miss Jared K. Burks' two books *Minifigure Customization: Populate Your World!* and its sequel *Minifigure Customization: Why Live In The Box?* (both are available now at www.twomorrows.com)



The same parts printed by Shapeways and Kraftwurx with various resolutions. Left two columns, top down, are as follows: White Strong and Flexible from Shapeways, Black Strong and Flexible from Shapeways, Nano Clear HD from Kraftwurx. The Swords from left to right are White Strong and Flexible, Black Strong and Flexible, and Nano Clear HD. Notice the print pattern on the Nano Clear sword. This can be removed with sanding, however, be careful not to remove your print detail or sand your part too thin. Note: the Shapeways shields (White Strong and Flexible and Black Strong and Flexible) are much larger than the Kraftwurx (Nano clear HD) print; for scale see the Multicolor Links or Shield figure.

Materials

<http://www.shapeways.com/materials>

<http://www.kraftwurx.com/3d-printing-materials>

Shapeways has two materials which suit both the detail and texture of LEGO elements; the 'White Strong and Flexible' (WSF) and the 'Detail' plastic. The WSF material is a nylon material and as the name would suggest is strong and flexible. Although cheap, it has a somewhat bumpy surface due to it originating from a powder. The Detail material solved this surface problem. The Detail material is an acrylic-based photopolymer, which is a smooth material with a much higher resolution to the printed item. This resolution has limitations as it lacks both the flexibility and the strength of WSF. Many colored variations of the two materials have been introduced as well as a polished WSF (50-51 micron resolution) option which significantly improves the problem of its bumpy surface texture. The high demand for such small detailed objects also allowed Shapeways to release the 'Frosted Detail' and 'Frosted Ultra Detail' materials. This UV curable acrylic plastic can achieve details of up to 0.1 mm and is very smooth to the touch. Despite being quite costly compared to the other materials, it is by far the most authentic looking in the hands of a LEGO Minifigure as it most closely resembles LEGO element materials (ABS).

Kraftwurx has several options well-suited for both detail and texture of LEGO elements: Water Clear SLA, Nano White, Nano Crystal, Nano Crystal HD, and Vero. Nano Crystal would be the first choice with the smoothest surfaces and highest detail and part strength. Vero White would be the next best choice for smoothness and detail. For the purpose of this article I am going to focus on Nano Crystal and Nano Crystal HD as these are the best and still affordable. Water Clear SLA is highly detailed, but small features may be lost in LEGO scale. Shapeways' polished WSF is same material as Kraftwurx's Nano Crystal, however Nano Crystal is printed at a higher resolution (29 microns for Nano Crystal versus 50-51 microns SW polished Strong & Flexible). The Polished WSF



Side by side painted Shields (Nano Crystal HD, WSF, WSE, WSE, BSF). The 2 leftmost shields feature the same design, however the others have slight design variations for different versions of the shield in the game Legend of Zelda. These shields were painted and photographed by Michael "Xero" Marzilli. He noted that the higher resolution Nano Crystal HD shield, even though smaller than the others, was easier to paint due to the crisper detail. All shields were sanded, primed, painted with Alclad II Chrome Lacquer, and then painted with blue, red, and yellow paint applied over the top, yielding a metallic appearance.

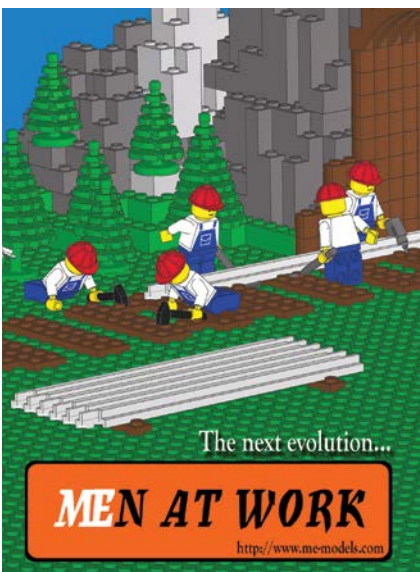
produces layers at 50-51 microns thick, however Kraftwurx prints the Nano Crystal at 29 microns per layer, and Nano Crystal HD finish at 15 microns per layer. The glossy / polished finish of the WSF is a paint application process, so if you need to alter the part color, this might not be a good option. An alternative would be to simply clear-coat your part with high-gloss paint.

There are few guides available covering the painting of the Nano Crystal material, and as with painting any 3D printing material, it will be an experimental process. As you can see in the examples, all the parts have been painted. Please know that they were all first sanded lightly to help the paint adhere to the surface. Alclad II was used as a base on the shield and sword for the metallic look. Alclad is a great alternative for chrome appearance. Below is a link to the Material Data Sheet for the Nano Crystal, brand name: "VisiJet Crystal EX 200". The manufacturers produce various colors of the material using dyes, but the physical properties remain the same. These materials can also be dyed instead of painted. The Nano Crystal and Nano White can both be dyed using RIT clothing dye and warm water in much the same process as with styrene and ABS; again this topic was covered in a previous *BrickJournal* article.

<http://www.3dsystems.com/products/datafiles/visijet/msds/visijet-crystal/24184-S02-00-B-MSDS-US-English-EX-200-Crystal.pdf>

Tips and Tricks

1. Nano Crystal and Water Clear SLA both produce very smooth 3D surfaces, however any time you are going to paint a part, sanding is recommended to ensure a good surface bond.
2. Many materials are paintable but would require sanding before painting; some are blasted with a clear coat at the production facility.
3. I would recommend spruing or otherwise connecting multiple small pieces together for ordering in Nano Crystal or Water Clear SLA. This will prevent loss of the small pieces and help you get the best price for multiple pieces.
4. Many materials are available in a wide range of colors or finishes. Ask questions; many times this is simply paint applied. It might be more cost effective for you to apply your own paint.
5. Primers can help improve the overall looks and can be critical for the paint to adhere properly. Primers can be applied using a light "dusting" before painting. With any sanding and painting, please wear proper respiratory and eye protection and refer to the Material Data Safety Sheet (MSDS).
6. Occasionally at the discretion of the production staff, they will send more than one print if the items are very small or if there is a risk of breakage in shipping.






Multicolor Links: Various colored Link figures signifying various versions of the character from the game. Photo by Michael "Xero" Marzilli.

What is LEGO doing about the 3D printing industry?

LEGO has been awarded a 3D printing patent; this patent may allow users to print their own bricks or minifigure accessories. The patent, WO 2014005591 A1, is for 3D printing plastic on to LEGO-molded bases. This would allow the connectors to be molded to precision, but give printers many creative options to shape parts into any desired form. To quote from the patent application:

"A method for the manufacture of a plastics product (1) and a plastics product (1), which plastics product (1) comprises a first (2) and a second (3) component that are both manufactured completely or partially from moulding plastics, and which first component (2) is manufactured by moulding in a mould, such as by injection moulding, and which second component (3) is made by a process in which it is built in a layer-by-layer fashion, such as by 3D-printing, and having a mounting surface (7); and wherein the first component (2) is ready-moulded and ejected from the mould prior to it being joined with the second component (3) to form the plastics product (1). By the first layer of material formed in the 3D-printing process of manufacturing the second component (3) being formed on a surface having the same shape as the mounting surface (7) of the first component (2), it is enabled to manufacture a product with a high degree of design individuality, while simultaneously parts of the product can be made with very fine tolerances."

While this patent would likely conform to the creation of LEGO bricks, it could also apply to minifigure accessories. If these bases were for the minifigure head, helmets could easily be created. This would allow lower resolution home printers to still connect with a high degree of clutch power to existing LEGO elements.

So while this technology is developing, always pay attention to resolution. Resolution comes with a price; make sure you order what you need. Also, keep your eye out on LEGO's activities; it looks like they are trying to help us out with our creations. 

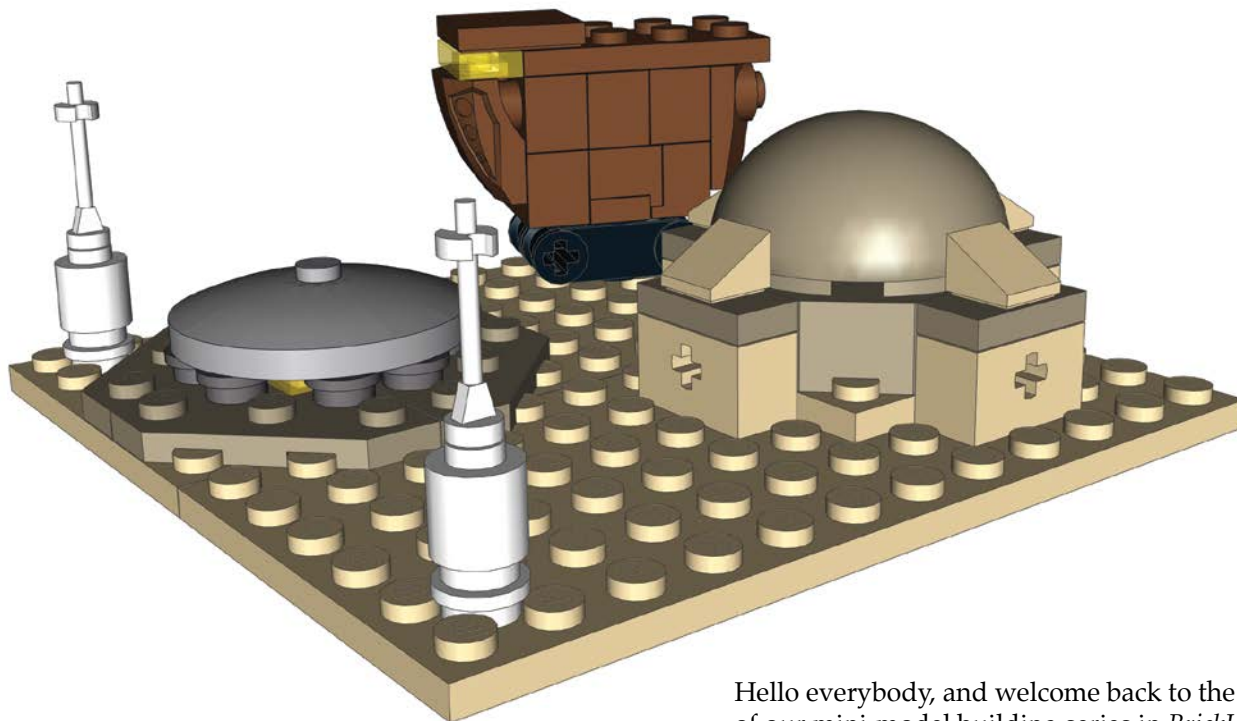
Come back next issue for more Minifigure Customization 101!



You can go to Jared's webpage by going to <http://www.fineclonier.com/> or scanning this QR code!

You Can Build It

MINI Model



Lars' Homestead Mini Diorama

*Design and Instructions
by Christopher Deck*

Hello everybody, and welcome back to the next session of our mini-model building series in *BrickJournal*! This time we want to expand our little collection of popular *Star Wars* locations. After a visit on Endor in the last issue of *BrickJournal*, we are back on the desert planet Tatooine this time. We want to build a mini diorama of the Lars' family moisture farm, home of Luke Skywalker. To keep it as compact as possible we will start on a 12x12 basis and place living quarters, tech dome and some moisture evaporators on it. You will mostly need tan and brown colors for this diorama. If you don't have the proposed tan color, you can take whatever you have available—even sand red shades will work to provide a sandy desert look. As a bonus, we will place a Jawa Sandcrawler in the background travelling the dune seas. I hope you will enjoy building this small set-up! Happy building, and see you next time! 🧱



You can visit Christopher's webpage by going to www.deckdesigns.de or scanning this QR code!

Parts List

(Parts can be ordered from Bricklink.com by searching by part number and color)

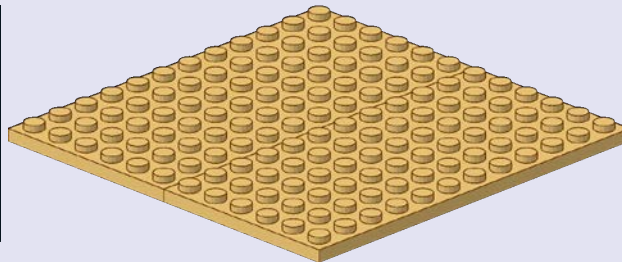
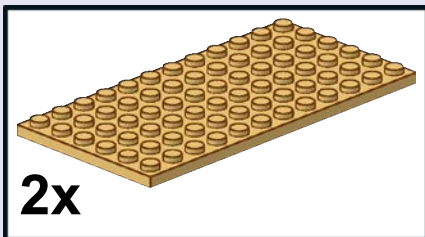
Homestead

Qty	Color	Part	Description
2	White	3062b.dat	Brick 1 x 1 Round with Hollow Stud
1	Dark-Tan	3003.dat	Brick 2 x 2
4	Dark-Tan	87620.da	Brick 2 x 2 Facet
1	Light Bluish Gray	3960.dat	Dish 4 x 4 Inverted
1	Dark-Tan	86500.dat	Dome 4 x 4 Smooth
2	White	90540.dat	Minifig Ski Pole
2	White	4073.dat	Plate 1 x 1 Round
8	Dark Bluish Gray	4073.dat	Plate 1 x 1 Round
2	Trans-Yellow	3023.dat	Plate 1 x 2
4	Dark-Tan	3794a.dat	Plate 1 x 2 without Groove with 1 Centre Stud
4	Dark-Tan	2450.dat	Plate 3 x 3 without Corner
1	Tan	3031.dat	Plate 4 x 4
2	Tan	3028.dat	Plate 6 x 12
4	Tan	54200.dat	Slope Brick 31 1 x 1 x 0.667
4	Tan	32064a.dat	Technic Brick 1 x 2 with Axlehole Type 1

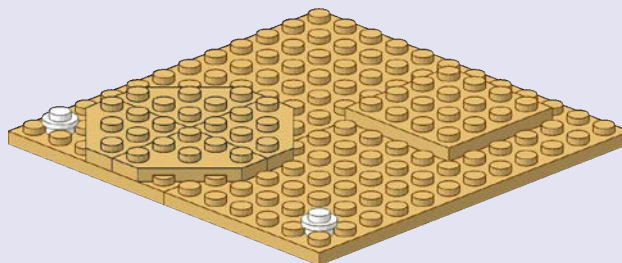
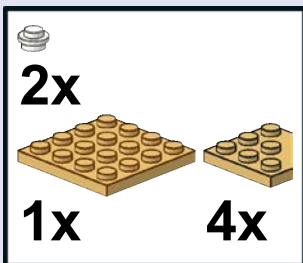
Sandcrawler

Qty	Color	Part	Description
4	Reddish-Brown	4070.dat	Brick 1 x 1 with Headlight
4	Reddish-Brown	87087.dat	Brick 1 x 1 with Stud on 1 Side
1	Reddish-Brown	3004.dat	Brick 1 x 2
1	Trans-Yellow	3023.dat	Plate 1 x 2
1	Reddish-Brown	3023.dat	Plate 1 x 2
1	Reddish-Brown	3020.dat	Plate 2 x 4
1	Reddish-Brown	44675.dat	Slope Brick Curved Top 2 x 2 x 1 with
Dimples			
1	Reddish-Brown	41855.dat	Slope Brick Round 2 x 2 x 2/3
2	Reddish-Brown	6541.dat	Technic Brick 1 x 1 with Hole
2	Black	32184.dat	Technic Cross Block 1 x 3 (Axle/Pin/Axle)
1	Reddish-Brown	3068b.dat	Tile 2 x 2 with Groove

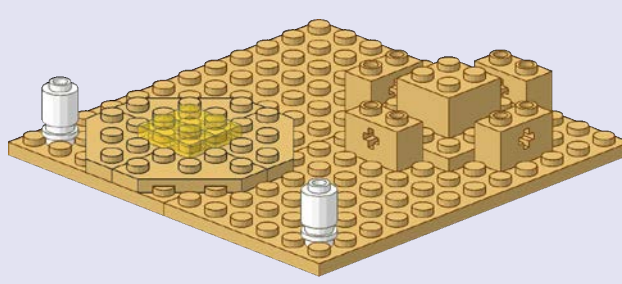
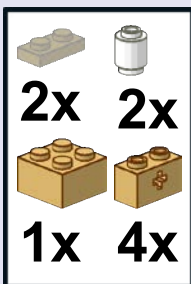
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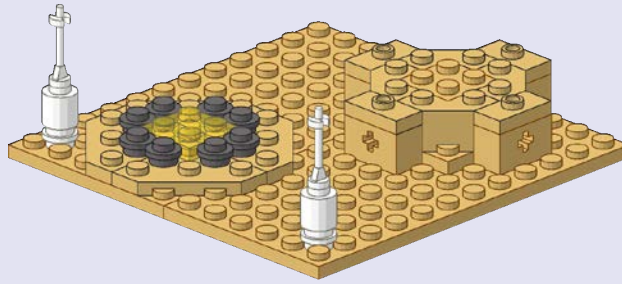
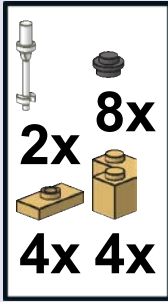
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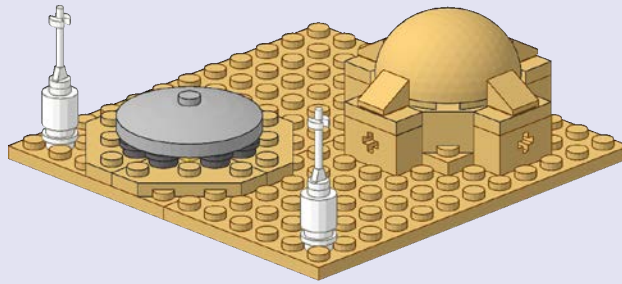
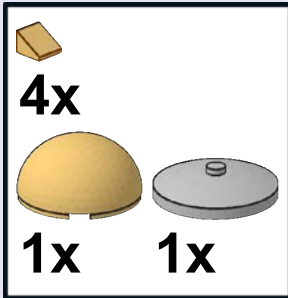
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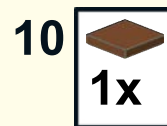
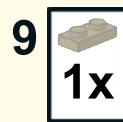
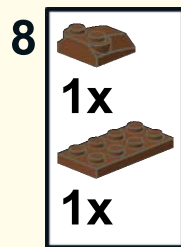
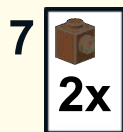
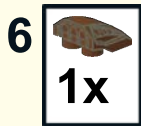
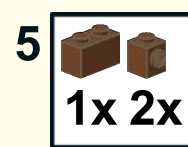
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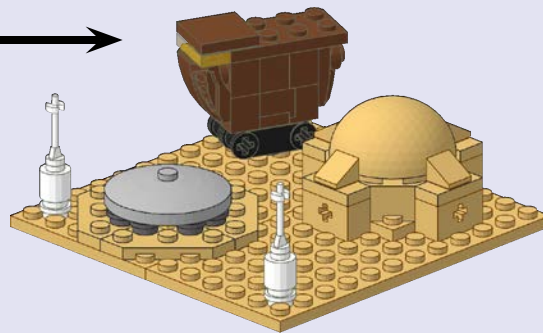


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Building

MINDSTORMS 101: Using the Colour Sensor

Article and art by Damien Kee

In the last installment of our MINDSTORMS articles, we looked at how to program your robot to turn. This time, we will start using sensors to control a robot's actions. To get started, grab your RileyRover or RetailRover that you built for the last lesson. In fact, any two-wheeled robot will be fine for this activity.

When using just the Move Steering blocks, we are always directing the robot to do a specific set of movements. This is often called 'dead-reckoning'. The problem with dead reckoning is that, should anything get in the way of the robot, it has no ability to realize this and will blindly continue to follow its given instructions, regardless of what is happening in the real world.

Sensors give our robot the opportunity to measure what is happening in the outside world, in real-time, and then (programming permitting) use that information to make informed decisions about its actions.

The Sensors

There are quite a few sensors that are included as part of either EV3 system.

Home Edition (31313)

Touch
IR Seeker
Colour

Education Edition (45544)

Touch
Ultrasonic
Colour
Gyro

In addition to this, there is a huge range of third-party sensors that can be used with the EV3 system, including accelerometers, force sensors, temperature probes, etc.

For this article, I'll concentrate on the Colour sensor, as it is common to both versions of the kit.

A Look at the Colour Sensor

The Colour sensor can be used in three different ways:

Colour Mode – Measure and report a specific colour, Black, White, Green, Blue, Red, Yellow and Brown. These have to be pretty close to the official LEGO colours for it to work most reliably.

Reflective Mode – Rather than just giving a set colour, this mode gives a reading ranging from 0 to 100, based on the amount of light that is reflected back into the sensor. Lighter, shinier colours will reflect more light, whereas darker colours will absorb more light. This is particularly useful when you know you'll encounter colours that are not the 'standard' LEGO colours.

Ambient Mode – This mode will measure the ambient light that the sensor can see. If it's in a dark room or you cover the sensor over, you'll get a low value; if it is in a bright room or pointing at a light source, you'll get a high value.

We will stick with the Colour Mode for this article.

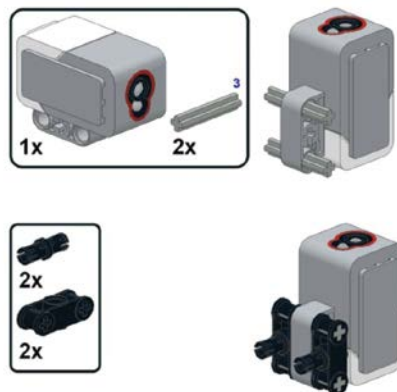
The TASK

Your first challenge is to make the robot drive along the floor until it encounters a red strip of paper.

Firstly we'll need to add a Colour Sensor to our robot.

Here is a quick attachment that can be used with the RileyRover or the RetailRover. If you have your own design, find a way to attach the Colour Sensor to the front of the robot, so that it is pointing down and is approximately 5mm (.19 inch) from the ground.

Colour Sensor Attachment



Colour sensor attached to Riley Rover.

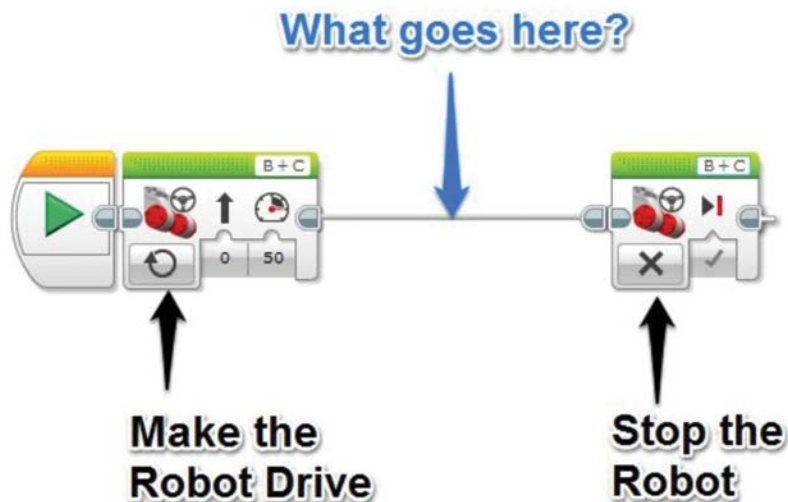
Just the mere presence of the Colour Sensor does not mean the robot knows how to use it. It is up to us as programmers to give it the appropriate instructions.

The PLAN

There are many ways of achieving this task, but let's start with one of the more basic approaches. Ideally we want the robot to go through the following set of instructions.

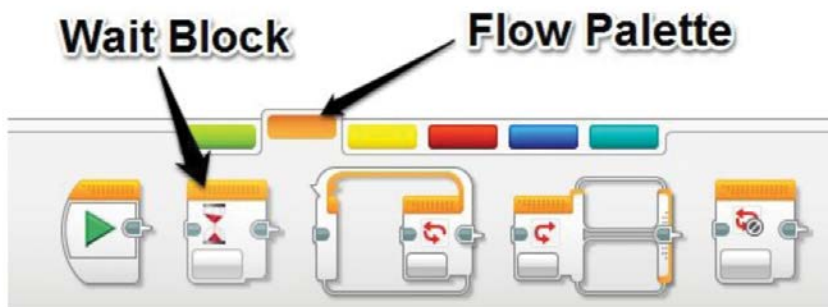


So the 'Make the Robot Drive' and 'Stop the Robot' can both be achieved with the Move Steering Block that we learned about previously, but how do we do the 'Wait until the Colour Sensor Sees "Red" '?



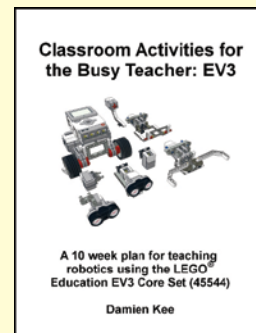
The WAIT Block

The Wait block can be found in the Flow palette of blocks and is a great way of telling the program to 'wait' at a particular instruction, until a certain condition has been met.



This condition might be 'wait for 3 seconds before moving to the next instruction', 'wait for the Touch Sensor to be bumped before moving to the next instruction' or in our case, 'wait until the colour Red is detected before moving to the next instruction.'

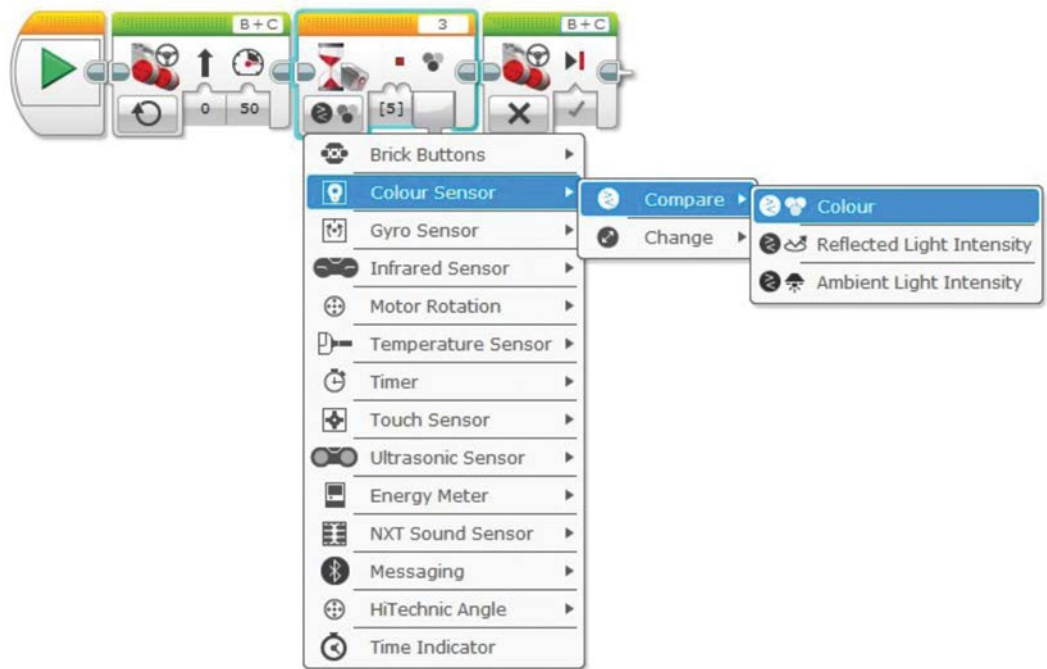
Dr Damien Kee has been working with robotics in education for over 10 years, teaching thousands of Students and hundreds of Teachers from all over the world. He is the author of the popular "Classroom Activities for the Busy Teacher" series of robotics teacher resource books.



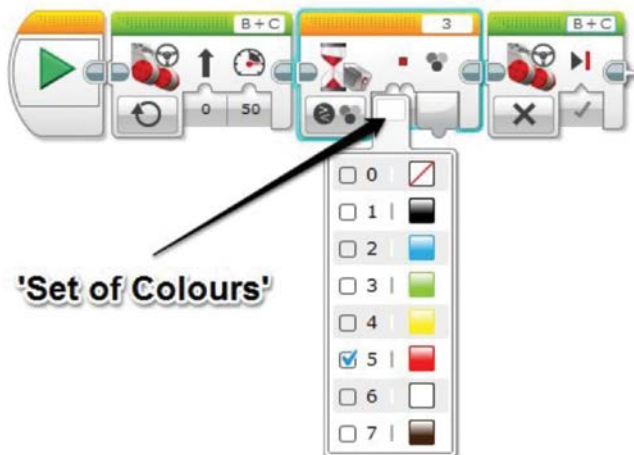
You can find more information at www.damienkee.com or contact him directly at damien@damienkee.com. Or you can scan the QR code below!



Select the 'Colour Sensor > Compare > Colour' Mode. Double check that the Port on Wait Block matches the Port on your Robot (I have my Colour Sensor connected to Port 3).



Click on the 'Set of Colours' input to change which colour the sensor is looking for, if necessary.




Now test it! Place your robot down on a surface that isn't Red, and drive it towards a strip of red paper. Try and match your red paper to the official red LEGO pieces if possible. If all goes to plan, the robot should stop when it reaches the red paper.

What Next?

Here are your next challenges:

- Make the robot stop when it sees either Red or Blue.
- Make the robot stop, make some noises and then turn around when it sees Yellow.
- Make the robot stop when it gets to the edge of a table! (Hint: When the Colour Sensor is over the edge of the table, it will give you a reading of 'No Colour')

Good luck! 



Iain Heath (left) and Tommy Williamson at the first display of what will become Bricks of Character, shown at BrickCon 2009.

You may have already heard the story of how the Bricks of Character category came to be a thing. If so, too bad; I'm going to tell it again. It was Fall 2009, and two young (yeah, right) and brash (totally) builders were attending their first LEGO convention. Did I mention these two were ravishly handsome and exceedingly popular? No I didn't, because I'm talking about Iain Heath and me. Amid the chaos of set-up on the first day, both Iain and I struggled to find a place where our MOCs would fit in, me with my first larger size MOC of *The Colbert Report*, and Iain with a whole selection of fantabulous characters. As I finally settled in the Art section and was setting up, Iain came over to say that he had commandeered a section of table in the back corner of the room. He invited me to join him since our MOCs were sort of orphaned. We also went around a bit later and invited a few other builders to come to the back corner as well. Before we knew it, we had ourselves a fairly respectable little display. We spent the rest of the show getting to know each other and our fellow AFOLs, enjoying all the activities of the con, and generally misbehaving as usual. Before the end of the con, we decided that what we had pulled together needed to be a thing. We didn't have a name for it yet, but we were determined that it would happen again. Over the next few months we agreed to coordinate a category for the first Bricks by the Bay fan event and came up with a name for our little endeavor: Bricks of Character.

It occurs to me you may be wondering what I mean by characters, and it's actually pretty simple: brick-built characters from pop culture. Our guidelines were pretty simple: no minifigures, and don't make fun of Iain's silly accent (I made that second one up). We usually end up with a few MOCs that are in the gray area as far as what constitutes a character (for instance, GLaDOS from the Portal games), but for the most part, if it's got a face, it's in!

Bricks by the Bay 2010 was the first official instance of BOC, and by all accounts, a total success. We only had a couple of tables, but they were absolutely packed with characters. With over 100 characters making their appearance at the event, it was clear to both of us that Bricks of Character was a hit. At several events (and every BrickCon) since, the category has been very active and always a big crowd pleaser on public days.

Character Witness

Article by Tommy Williamson



Bricks of Character at BrickCon 2010.



Unfortunately I could not attend BrickCon 2010, as I was in England learning to talk more like Iain. Ok, I was working on *Pirates of the Caribbean: On Stranger Tides*, but I did learn a lot about silly accents in my time there. Luckily for me, Iain had my back and I was able to virtually attend. Visitors to the Bricks of Character tables (and elsewhere around the floor) were being watched over by my inexplicable visage pasted to the columns of the room. Iain had taken it upon himself to print my head out at life-size and decorate the room with me. I had no knowledge of this until photos started showing up on Flickr with me tagged in them.

Iain and I both share a quirky sense of humor. Well, we don't exactly share one; we both have our own, but they're



Bricks of Character trophies.

similar. One cannot share a sense—unless you're talking about a sense of charity or something like that, in which case, here... have a donut. One of the ways we amuse ourselves at the expense of others is with the trophy categories for Bricks of Character, as well as the trophies themselves. Some of the more notable ones from the past few years are Awesomesauce, Most WTF, Most QUTENESS, Epic MOC Is Epic and FTW, just to name a few. The first year we did this, the guy who engraves our bricks had a real problem with this. He kept kicking back the order since it had typos or nonsensical words in them. Eventually he saw things our way and has since stopped asking—we broke him. We always try to make our trophies (yes, you get cool trophies at LEGO conventions) really fun too. In addition to the regular trophies that first year, we had a special "best in category" award, the Golden Hawking. Yes, a trophy tribute to that most politically incorrect of MOCs, Iain's Stephen Hawking. Since we've been doing this so long, now it's starting to get a little difficult to come up with new and interesting categories and trophies, but we love a challenge. It's a bit funny; since we're both character fans, we always contribute to our own display, so over the years we've both won trophies... that we built ourselves.

One of the greatest pleasures of running this theme is getting to see some amazing MOCs in person. We spend all year gawking at Flickr and MOCpages at the marvelous creations, but both Iain and I think the best way to experience excellent MOCs is in person. And it's a real joy to see characters we've seen online appear in person on our tables. What's more, many people seem to think it's some sort of privilege on their part that they are allowed to display. This is always mind-boggling to us, since it's *we* that are honored by them gracing our table with their art. One of my personal favorite things to do at BrickCon is

spend late Friday (the day before public days, when almost everything is set up) quietly walking around marvelling at all the amazing work on display. And I especially like perusing our tables.

As time has passed, we've actually enhanced the category with themes and community builds for the events. One of my favorites was Pythonscape, a tribute to Monty Python. Both Iain and I are great fans of Monty Python, so when he suggested the theme, it was immediately agreed on. I contributed King Arthur and his silly English Knnnnights, all six Pythons as they appeared in *Monty Python and the Holy Grail*. Iain of course threw down the gauntlet and had an amazing collection of brilliant pieces, my favorites being the New Cooker Sketch (with a Ministry of Silly Walks cameo) and the fattest man alive, Mr. Creosote (better get a bucket). In my defense, I was working on two movies at the same time in Los Angeles, and travelling home for the weekends on the central coast. That didn't allow much building time, and I still managed to contribute, so get off my case, Iain! Last year BrickCon had a very odd theme overall, *Pigs Vs. Cows*. Yes, that age old barnyard fight came to a LEGO convention. We rethemed Bricks of Character as "Pigs of Cowacter", and of course had plenty of fun with the trophy categories. I rethemed some of my old MOCs and brought them back for a final appearance. *The Colbert Report* was now *The Cowbert Report*, and actually won "the hamburger award" for the con (should have been the "reusing an old MOC" award).

A sub-theme that meant a lot to both of us was Darlings. Darlings were a little character form factor dreamed up by AFOL Heather Braaten. Sadly, Heather passed away in 2011 and as a tribute, Iain and I invited the community to bring their Darlings to BrickCon for a special display. It was a very charming selection of tiny characters that made



The Golden Hawking trophy.



The growing BOC space in 2011, including creations from sci-fi, Anime, and video games.



Tommy and Iain at the 2011 BOC display, with Pythonscape.



One of the creations from Pythonscape.




The Darlings tribute at BrickCon 2011.



Star Wars Darlings.

everyone smile, despite our shared sadness. Heather's family came to visit, and I was truly honored to send home my *Star Wars Darlings* with Heather's young nephew.

Bricks of Character is turning five this year (six if you count our first little display) and we couldn't be more proud. I hope in the future the category can get more attention at more events (BrickFair and BrickWorld, I'm looking at you!). Preparation for BrickCon 2014 is underway while I write this, and of course I've got nearly nothing done. So if you'll excuse me, I have to get building. 



Two men and a sign.

One of the cool things about building LEGO versions of characters from popular culture is that—occasionally—a whole bunch of people get excited about your creations!

I first learned this when one of my earliest MOCs—a model of Stephen Hawking—went unexpectedly viral. As a LEGO builder, my passion has always been for recreating memorable characters from movies and television. And some of those creations have certainly been popular too, provided that the movie or show in question is recent and therefore still in the public consciousness. My interpretations of *The Hobbit*, *Inception*, and *Epic Meal Time* have certainly generated a lot of Twitter action, and even some press interest.

Actually, this isn't such a hard game to play... just keep an eye out for an upcoming blockbuster. Then track down any advance images you can find of the main characters. Then start your build well ahead of the movie's release date, so that you can reveal it just when the movie's buzz reaches its high point. And as long as the movie doesn't turn out to be a complete turkey, your effort won't have been wasted!

It's certainly very gratifying when your LEGO creation starts spreading person to person, website to website, and that view counter kicks into overdrive. It's probably the drug that keeps me building. But none of my carefully orchestrated and painstakingly crafted creations ever seemed to experience quite the same success as that silly little Hawking model. People are *still* tweeting about it and reposting images of it on a daily basis, even eight years later.

Which got me thinking—could I repeat that feat, and create new LEGO models that would become just as viral? At this point I'd already mastered the art of shameless self-promotion, through a network of contacts on a multitude of social media sites, even getting the guys from *Epic Meal Time* to tweet a picture of one of my models sitting on their kitchen counter. All I needed to do was find a subject that was destined to become the Next Big Meme. The trouble is, they don't exactly announce those things months ahead of time, like they do with movies... it kinda just happens overnight.

So I got into the habit of monitoring all the “cool thing of the day” websites, waiting to see if some event or image was starting to show up everywhere—an early indicator that it might be going viral. Then during the London Olympics, US gymnast McKayla Maroney was *not impressed* with her silver medal, and I saw my opening! I ran to my bricks, and as fast as I could, I built a version of her pulling that face. I didn't have the time (or bricks) to build the scene behind her, so I just photoshopped it in from the original image. Then I blasted my version out there for all see. Within a day or two, people had started superimposing Ms. Maroney into all kinds of random situations, and my LEGO version got swept up along with them, even making an appearance on the official LEGO Facebook page!

After the success of the Maroney build, I was able to refine my process for LEGO “meme-icry” to a fine art, watching for trending images, doing fast builds, and figuring out where to publicize them for maximum effect. The trick is definitely to get your build finished and photographed *fast*, typically within 24 hours of the original meme. That ensures your LEGO version can “ride the wave” of the original's popularity; which means the builds need to be *small*. For human characters I



Bilbo and Gollum.

Adventures in Meme Chasing

Article by Iain Heath



McKayla Maroney (inset) and her LEGO namesake.



Jean-Claude Van Damme as built by Iain.



Grumpy Cat.



tend to stick to roughly Miniland scale, and then photoshop in (rather than build) any background details.

When I decided to parody Jean-Claude Van Damme's *Epic Split* commercial, I realized the trucks he was standing on were gonna be hard to build to scale. Even if I only built them partially, it was way beyond my skill level and would have taken too long. And ordering bricks was out of the question too—you generally have to work with what you've got. So I had to come up with a creative solution, and I think the 'baby' trucks that I created for my version of the scene add a nice comical twist. (You can also check my YouTube channel for another comical take on the commercial.)

It's important to actively promote your new creation too, so that the world will actually find out about it. This involves more than just posting it to the usual LEGO-related sites such as Flickr or MOCPages; you'll want to do some 'targeted' advertising. For example, find the most relevant sub-Reddit (on Reddit.com), or send a tweet to the very entity that you have parodied, or post it on their Facebook page. I would also recommend sending a short e-mail to a few pop culture websites like Neatorama, Mashable or io9. Most of these sites have a 'tips' e-mail address, and are very enthusiastic about blogging LEGO versions of non-LEGO things.

As far as I can tell, **the Internet is run mainly by cats**, so I've parodied a few cat memes over the years too, such as *Grumpy Cat* and the *Roomba Shark Cat*. LEGO even asked me to do a special version of my *Grumpy Cat* to use as a caption contest. Of course, nearly everyone came up with the same caption that I had chosen!



Roomba Cat.



Then about a year ago, I found myself inexplicably watching the *VMA Music Awards* when Miley Cyrus came on stage to strut her stuff. I was horrified, yet strangely could not look away. Even before her performance had started trending online (or my nausea had completely subsided) I was already at my bricks working on a LEGO version. The shock factor alone was enough to ensure a good response, and LEGO Miley rode that wave for quite a while, even catching the attention of Perez Hilton! However, I got such an awful ragging from my AFOL buddies for sinking to such a new low level, that the only way to redeem myself was to destroy the creation violently on camera.

History kind of repeated itself a few months later at *The Oscars*, when host Ellen DeGeneres posted a celebrity selfie that 'broke' Twitter. It was a Sunday night, and I knew this was a huge opportunity, but I could also see that this would be a really tough scene to recreate in only 24 hours. In fact, I almost didn't attempt it! The original photo featured a *dozen* people. And they were in close-up, so simple 2-stud-wide Miniland faces would not be recognizable enough. I had already developed a technique for doing detailed 3-stud-wide Miniland faces, so I came up with a basic pattern that I could repeat and modify for each successive face.

After a mammoth *12 hours* of continuous building, it was done. Even photographing this scene was a pain too. With all the faces at different distances, it was impossible to keep them all in focus. So in the end I photographed the scene at two different focal lengths, and combined parts of both images to create the final shot. Then I posted it everywhere I could, and waited. Before too long, the image started to explode on Twitter, and I knew it was in the bag!

The real surprise though came a few days later when Ellen actually featured my version (plus a version by the creators of *The Simpsons*) on her TV show! She described it as "very flattering", a comment that I found equally flattering. And that was pretty much that. Except that a few parts of that MOC do still survive, and I have started taking them to conventions and combining them with other unrelated character MOCs to create entirely new LEGO Ellen selfies.



Robin Thicke and Miley Cyrus.
Image © VMA Music Awards.



Iain destroying Miley.



Ellen's selfie (above)
and Iain's version (right).
Image © Ellen DeGeneres..





Wil Wheaton signing his model.




A close-up of the Wheaton model.



Iain's Trololo guy.

My meme-based builds have probably reached the level of *stunts* at this point. The best example of this was probably at *Emerald City ComicCon*. My local LEGO group, *SeaLUG*, always puts on a large display at this event. During set-up day, I learned that pop-culture icon *Wil Wheaton* was attending the event. Someone had posted some photos of him signing autographs, and for some reason his table looked *way* nicer than those of his fellow celebs. So I rushed home, and spent the next convention day off-site building a tiny replica of the scene. On the last day of the convention, I brought it along to his table for him to sign. That photo made the rounds on the Internet for a long time, and is one of my most widely viewed images to date... no thanks to The Man Himself though, who *to this day* remains completely oblivious to the entire thing, despite his gazillions of well-informed Twitter followers!

While a lot of my meme-based builds take advantage of the timeliness of their subject matter, my research sometimes exposes me to memes that have already peaked, but are just too inspiring or well-known for me *not* to parody them with LEGO. The "Trololo Guy" video was just hilariously bad, and hilariously yellow. While the "Y U NO" guy has been modified in so many different ways at this point, it seemed time to give the world a LEGO version. I even posted a caption-free "exploitable" variation of it, that people could use to vent their own frustrations on LEGO-related issues. And it's just as well I wasn't trying to push that one out in 24 hours because, as it turns out, taking a two-dimensional outline drawing and turning it into a three-dimensional model is nightmarishly difficult! I was noodling on that one for almost a week... 

You can find pictures of Iain's LEGO creations at [flickr.com/ochre_jelly](https://www.flickr.com/photos/ochre_jelly/), and watch his hilarious LEGO-themed videos at [youtube.com/ochrej](https://www.youtube.com/channel/UCochre_jelly) ...including his Epic Split parody and the destruction of LEGO Miley Cyrus!



Iain's "Y U No" model.



RWBY, a group of Anime characters built by Mike Dung.

Mike Dung is a 29-year-old software engineer from Taipei, Taiwan. When not playing with LEGO bricks, he enjoys digital painting, playing volleyball, watching Anime, and singing along to Vocaloid songs!

BrickJournal: *How did you get into building LEGO characters?*

Mike Dung: It began about 18 months ago when I first saw the work of Japanese builder MOKO. This had a great influence on me, since I had just started building. At that time I was crazy about Japanese Anime, so I started the idea of creating Anime characters using LEGO. Most Anime fans will be attracted by some characters in the animation, and I am no exception. The attraction drives me to create LEGO characters.

Compared to the rest of the world, it seems like a larger proportion of MOCs coming from Asian builders are character-based, inspired by Anime or videogames. Why do you think that is?

Since I've started following and learning from the works of LEGO builders in other countries, I have found that the proportion of characters built by Asian builders is more prominent, although I have seen a lot of characters built by European and American builders and they are also excellent.

Mike Dung: Anime Character Builder!

Interview by Iain Heath

Photography provided by Mike Dung



Vocaloid group in concert, built by Mike Dung.



In recent years Anime and games have had a great impact on many people in Japan, Hong Kong and Taiwan. I think LEGO builders are inspired by the things around them. In Asia, we have easy access to a lot of Anime and comics, so there are many sources of inspiration. While in Europe and America only the most famous Anime is popular, among which robot Anime is most prominent, so they tend to create more *Gundam* fighters than other characters. Of course I think it's not only in Asia—there are builders all over the world who are crazy about Japanese comic characters, and they build their favorite characters in LEGO too.

What would you say are the important things for making character MOCs look believable?

The key thing is the presentation of body proportions. I used to study computer graphics, so I pay special attention to that. I use various sloped and curved bricks to emphasize the body's curves, such as the back, chest, waist, and the size of thighs and calves. In addition, characters' movable joints are also part of my focus. Although LEGO characters are not fully comparable to a real person, most positions and postures can be made. Therefore there's a higher level of freedom in the presentation, and they also look quite natural.



Another shot of the Vocaloid group.

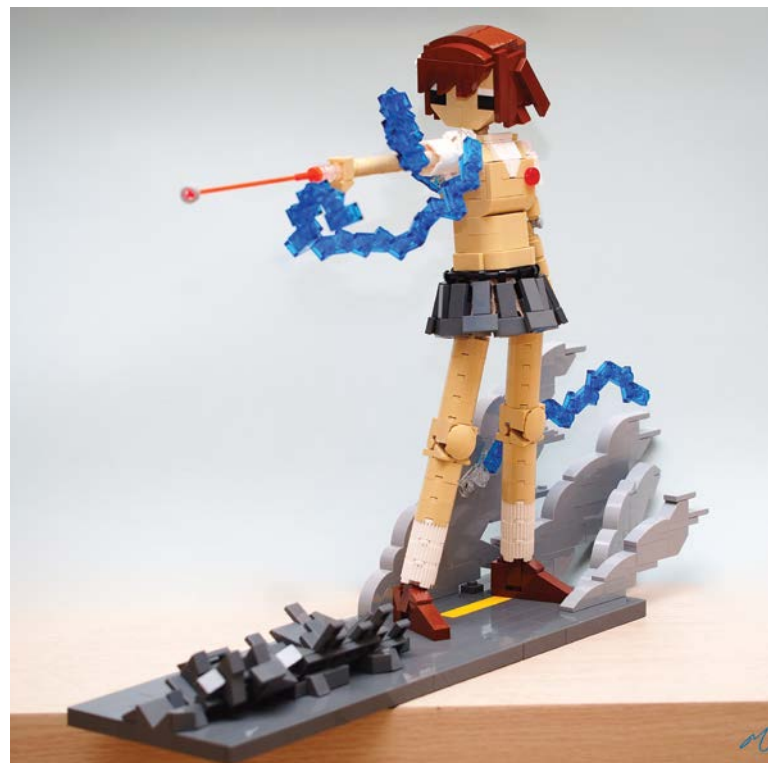
The challenge for me is building characters that can be instantly recognized by Anime fans. And with Anime characters, the important differences between them lie in their hairstyles, hair color, clothing and height.

One difficulty is that the colors and types of LEGO parts are so limited. For example, when I built *Yuyuko Saigyouji* there were fewer medium blue parts available, so it was difficult using them to build the different parts of the body. If it is difficult to get the right parts in some colors, I'll try to use other alternative colors. That's why some parts of my models have different colors from the original characters.

Your models have such detailed and realistic clothing. How do you achieve those effects while still keeping the models solid and stable?

Creating a skirt involves bending a *flexible hose* into a circle and then hanging *clip plates* down from it. However, with long dresses the hose will fall off because of the weight, and expose large gaps. So I eventually switched to using *octagonal frame* bricks instead of hoses, which significantly improves the stability. Using *clip plates* allows more freedom with costumes, which in some way contributes to the softness of the costumes.

All my models can stand up without needing stands. The stability comes mainly from the choice of ankle and hip joints. For the hip joint, I use different approaches for different characters: *ball joints* for some characters, *T-bars* for



Misaka Mikoto.



Shimakaze.

others. For characters in trousers, I usually use bricks with joints—they can provide great stability for a character; the tightness between plates and bricks is actually pretty loose, but as long as the position is fixed, it will stand up.

In general, if I find a better or more stable building technique to use for a character, I will update it, even if the work has been finished for a while and already posted online.

So what is the AFOL community like in Taiwan?



Flandre Scarlet.

For me, the AFOL community is a place where we can share our works and exchange techniques. A good AFOL community can bring great joy to those who have just started making LEGO creations and help people to not be afraid to show their works, whether they are good or bad, because people will encourage them, which gives them more confidence to create.

POCKYLAND is the first LEGO community that I have joined. People in this community like to give novices encouragement and we exchange building techniques when we get together. It is a group I very much appreciate.

Do you show your creations at public LEGO exhibitions? What kind of reaction do your characters get?

In Taiwan, I have participated in some gatherings and exhibitions organized by *POCKYLAND* and am very proud to have shown my LEGO character works at them. Since this is quite new in LEGO creation in Taiwan, people who have some knowledge of Anime are amazed when they see that LEGO bricks can be used to create those characters. People's impressions of LEGO are still of basic bricks, so they are very interested to see work created using LEGO parts of other shapes. When other LEGO builders see my work, they pay more attention to the techniques I use. I think as a LEGO builder, the happiest moment is when people discuss your works. If I get the chance, I really want to participate in some international activities such as BrickCon, so that I can interact with builders all over the world and improve my building skills.

Right now you are focused mainly on female characters. Do you see yourself trying your hand at male or Mecha/Gundam characters too someday? Who or what do you think you might choose to build?

Actually, before I tried to build female Anime characters, I had tried to build a unicorn *Gundam*. That was one



Hatsune Miku.

of my first MOCs. In the future, I hope to take on the challenge of creating Mecha or fantastic creatures. My main inspiration comes from things that I see, so the Anime I'm watching or video games I'm playing heavily influence my work. I was crazy about the online game *World of Warcraft*, so someday I want to create a *Tauren* shaman, because that was my first role in the game.

Which of your MOCs is the most personally important to you?

Hatsune Miku, because this was the one in which I put my dreams into practice, and it was my first complete MOC. At first I only built sets, and admired the works of others, doubting that I could do it. But after I began to read comics and watch Japanese Anime, I wondered whether I could create my own unique LEGO characters. After I tried to build a few small MOCs, I began to believe that I could create works similar to these of MOKO.

Because it was my first character creation, it was also the most difficult. From choosing materials for the face, figuring out how to render the hair, capture the curves of the body, or how to create body joints, I tried many different approaches before I finally finished it.



After several attempts and modifications, I had the honor of having the work appreciated by enthusiasts all over the world, which was a great encouragement to me. Now I will continue to create more characters to enrich our LEGO world! 🧱

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The gang's all here—(from left to right) Marvin the Martian, Tweety Bird, the Tasmanian Devil, and Yosemite Sam! All Looney Tunes characters TM & © Warner Bros.

Annie Diment: Looney Tunes Character Builder!

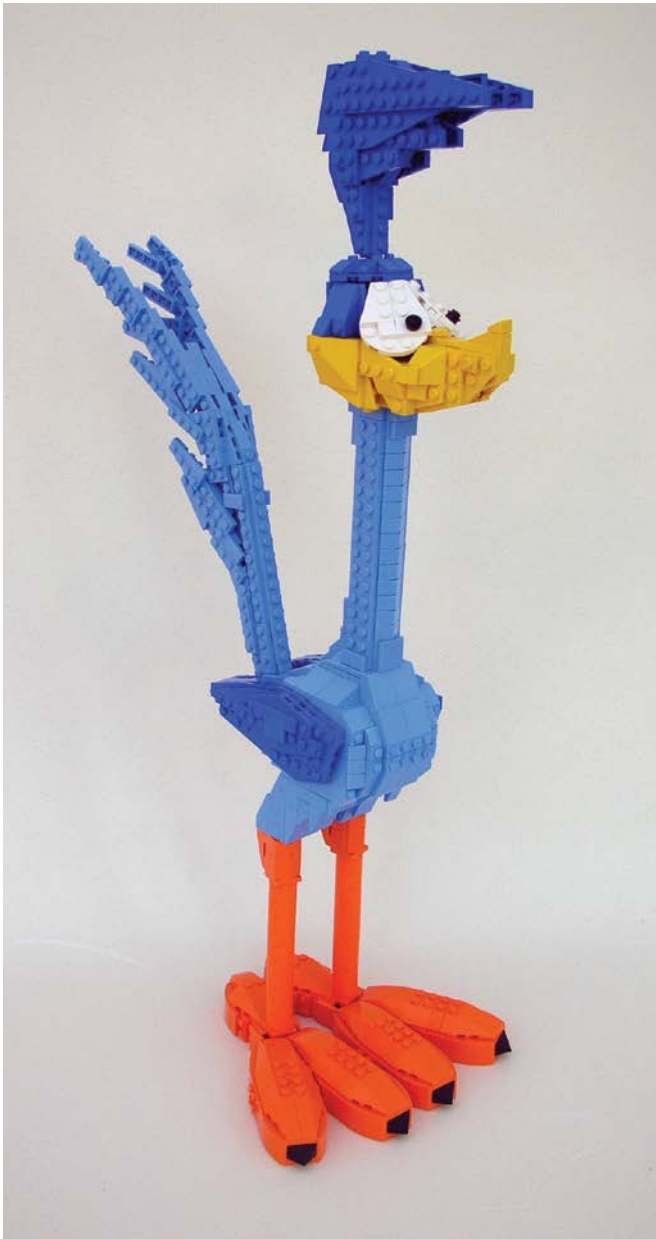
Interview by Iain Heath

Photography provided by Annie Diment

Annie Diment is 47 years old and lives in Hampshire in the UK. She is married to professional LEGO artist Ed Diment, who she met through their shared hobby of tenpin bowling. Annie helps out from time to time at Bright Bricks, Ed's company. She has attended many LEGO events in the UK, as well as LEGO Fan Weekend in Skaerbaek, Denmark, Tomar, Portugal, and BrickFair Virginia in Chantilly, Virginia.

BrickJournal: How did the whole idea of building Looney Tunes characters in LEGO come about?

Annie Diment: I wanted to build something sculptural so started playing around with building a rabbit, but this didn't really inspire me, so I started looking for something else. Ed had shown me the online Bram Sphere Generator (<http://lego.bladesign.org/sphere/>), and it occurred to me that cartoon characters' heads are often spherical. Marvin the Martian's head is a black ball, so I started building one of those and the model went from there. The cartoons are appealing due to their fun nature, coupled with a wide range of colors across the whole *Looney Tunes* family, and obviously a large number of characters to choose from.



Beep beep! Road Runner drops in.

What drove you to build them at a larger scale versus a smaller scale? How do you figure out the size each new model is going to be?

All the models came out the size they did based solely on Marvin the Martian's head. I picked a size of sphere and probably didn't appreciate the size it would be until I built it. Then I looked at his arms and legs and thought "actually, at this size, 2x2 round bricks would be perfect," and everything fell into place from there. Once I had done one, of course, the rest fell into line based on the actual relative sizes of the characters. The only one that is a little out-of-scale is Tweety Bird, but it would be tricky to get the eye detail in without going to this size.

The original cartoon characters are two-dimensional. Does it require a lot of planning to translate them into three dimensions?

Thankfully they are very popular characters so there is plenty of source material to work from. And because they are in cartoons, there are lots of poses too. I tend to break the builds down into parts (head, legs, arms, etc.) and



Marvin the Martian, one of the many impressive models by Diment.

work out a rough size for each bit. But beyond that, it's largely made up as I go along.

Most of the heads and bodies are variations on a sphere, as that's where I started. The bodies are built with a rectangular core of bricks, including "SNOT" bricks to allow plates to be attached on all sides. Once clad in plate, I then start to layer up the plate to create more rounded shapes, and just keep adding until I am happy. The eyes are usually the tricky bit as they often have to be angled, and it is usually a question of building them flat on a table and playing around with all sorts of combinations of small white wedge plates.

Where there is a small lightweight detail, I think it is fine to attach by a single stud or clip. Sam's neckerchief simply has two wedge plates attached only by one stud so that they can be rotated to a nice angle. Sam's hat is not actually fixed to his head, but simply hooks over a row of orange cheese slopes that form part of his hair. Making really small fingers is a nightmare and I've never really been happy with how Tweety Bird's turned out.



Above: Yosemite Sam and Tweety Bird.

Left: Daffy Duck.



Since you've kept very closely to the proportions of the original cartoon characters, with their large heads and slender limbs, is it hard to get the models to stay in one piece or stand up under their own weight?

It is very hard to make them stand up, and my husband hates helping me set them up! Marvin's arms keep bending at the wrong angle, Taz's legs collapse if they're not spaced right, and Yosemite Sam only balances with his guns and hat, so you have to put them on at the same time when you are setting him up; otherwise he does a face-plant. Surprisingly, the Road Runner is probably the most stable of all of them. I have technical axles or flex tube in all the arms and legs to hold the round bricks together. Even with all this, Taz has had two nasty accidents, each of which took a couple of hours to fix, and Sam completely fell apart once. You have to suffer for your art!

The most frustrating part is adjusting their design to enable them to come apart to be packed, but then allowing them to balance once you put the bits back together. This usually involves fiddling around with quite small changes to their poses.

Which one has been the most fun to build so far?

They've all been fun to build, but I think Taz was the




The Tasmanian Devil, or "Taz."

most fun, as I worked with Ed to get help on the technical aspects of making his legs removable, but still able to hold his weight. Plus he seems to be a favorite with people, so it was great to see their reactions at shows.

What kind of reactions do you get?

Reactions have all been positive as the models are so recognizable and everyone loves the characters, although some people do have trouble remembering all their names! The question I always get asked is, which one am I building next?

So dare we ask, which one are you building next? Will there more LEGO Looney Tunes?

Yes, I am planning on doing more *Looney Tunes*, but can't decide which one to do next. I am leaning towards Elmer Fudd, as there are all sorts of interesting details, and he adds more new colors to the color palette of the characters. People always ask when I am going to do Bugs Bunny, but I want to leave him until late on in the builds, as he is the most iconic of all, and I want to keep people's interest up all the way to the end! 

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Paul Lee: Bat and Mouse Builder!

Article by Joe Meno

*Photography provided
by Paul Lee*



Batman TM & © DC Comics.



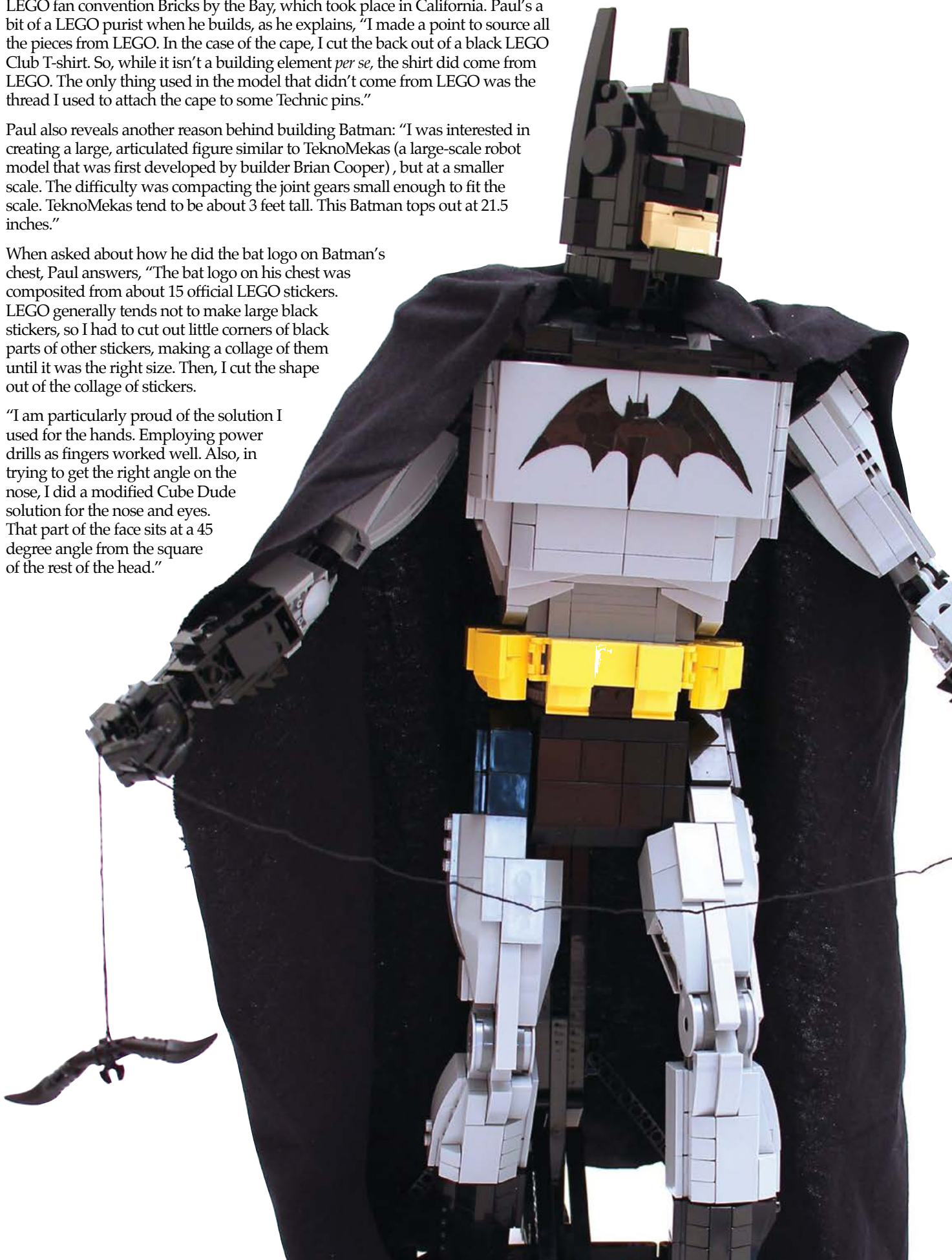
Paul Lee is an illustrator for the LEGO Group. His latest work was the DC Super Heroes comic that was a giveaway at San Diego Comic-Con and with the new Batman Tumbler set. He's been an artist for comic book publishers, but he's also a LEGO builder. He caught the attention of *BrickJournal* with a couple of character models he displayed at LEGO fan events.

One of Paul's more recent builds was a figure model of Batman for a contest at the LEGO fan convention Bricks by the Bay, which took place in California. Paul's a bit of a LEGO purist when he builds, as he explains, "I made a point to source all the pieces from LEGO. In the case of the cape, I cut the back out of a black LEGO Club T-shirt. So, while it isn't a building element *per se*, the shirt did come from LEGO. The only thing used in the model that didn't come from LEGO was the thread I used to attach the cape to some Technic pins."

Paul also reveals another reason behind building Batman: "I was interested in creating a large, articulated figure similar to TeknoMekas (a large-scale robot model that was first developed by builder Brian Cooper), but at a smaller scale. The difficulty was compacting the joint gears small enough to fit the scale. TeknoMekas tend to be about 3 feet tall. This Batman tops out at 21.5 inches."

When asked about how he did the bat logo on Batman's chest, Paul answers, "The bat logo on his chest was composited from about 15 official LEGO stickers. LEGO generally tends not to make large black stickers, so I had to cut out little corners of black parts of other stickers, making a collage of them until it was the right size. Then, I cut the shape out of the collage of stickers."

"I am particularly proud of the solution I used for the hands. Employing power drills as fingers worked well. Also, in trying to get the right angle on the nose, I did a modified Cube Dude solution for the nose and eyes. That part of the face sits at a 45 degree angle from the square of the rest of the head."





Mickey Mouse TM & © Walt Disney Productions.



You can support Paul's Mickey Mouse creation by going to <https://ideas.lego.com/projects/8082> or scanning this QR code!




You can see Paul's LEGO work and art by going to <https://www.flickr.com/photos/art-poly/> or scanning this QR code!

Paul also made a model of Mickey Mouse, which was displayed at BrickCon in 2013. This model also was submitted to LEGO Ideas, where it is currently gathering support to become a LEGO-produced set.

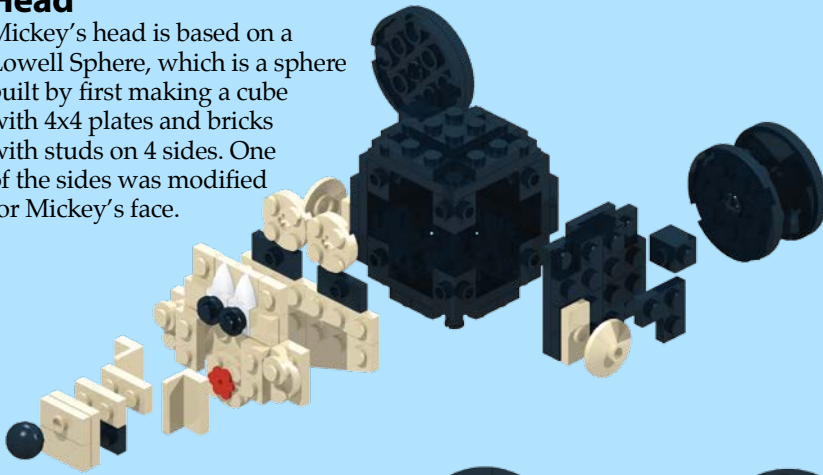
Asked about what inspired him to build such an iconic character, Paul answered, "The reason I made Mickey Mouse was actually that I wanted to build a Lowell Sphere. Bruce Lowell is a member of my LUG, and I wanted to build one for some time. Using instructions available on the Internet, I began building one. Somewhere in the process, it dawned on me that Mickey's head was essentially a sphere and I could probably make a Mickey Mouse. I think I was playing a lot of *Kingdom Hearts* at the time, which features Disney characters.

"Notably, the first Mickey I did is problematic to reproduce because it turns out I used some rare pieces unknowingly at the time. In particular, the tan 2x3 wedge plates, left and right, used for the chin were only used in one set, the 2004 *Star Wars* Snowspeeder (set #4500). As a result, there aren't that many of these tan wedge plates available in the wild, and the ones that are tend to be pretty pricey. When I last looked on Bricklink, the price averaged around \$9 each. So for two of them for the chin, it would cost \$10-\$20. I keep hoping that LEGO will reintroduce these tan wedge plates into sets, so that they would be more readily available and cheaper. On top of that, white 1x2 click hinges aren't as rare but are also relatively uncommon.

"Mickey's head is attached with a black modified 2x2 tile with pin built facing downward on the bottom-facing side of the Lowell sphere. On the body side, it is attached to a 1x1 Technic brick. The connection is loose so the head will spin around if not careful. I usually use a bit of dental floss to "snead" the connection, adding a touch of friction so the head rotation is tighter. Since the ears are attached by only one stud each, they tend to fall off easily." 

Head

Mickey's head is based on a Lowell Sphere, which is a sphere built by first making a cube with 4x4 plates and bricks with studs on 4 sides. One of the sides was modified for Mickey's face.

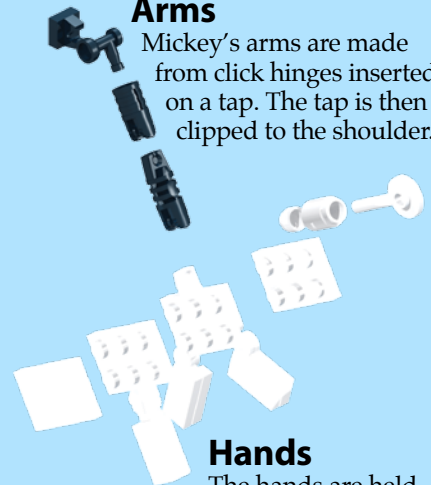


Face

Mickey's face is the front of the Lowell Sphere modified to make the contours of his nose and mouth, which is actually a LEGO flower.

Arms

Mickey's arms are made from click hinges inserted on a tap. The tap is then clipped to the shoulder.



Hands

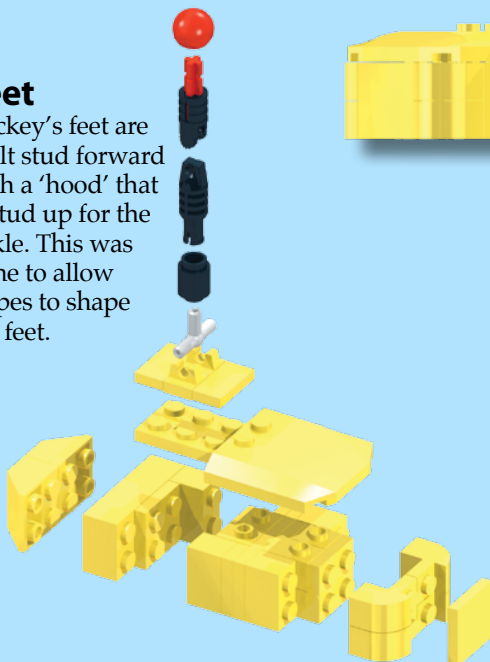
The hands are held together with a 2x3 plate at the bottom (palm). From there, hinges and click hinges are used to define the fingers. Tiles smooth out the hands' shapes.

Legs

Mickey's legs are much like the arms, except they use ball joints at the waist. A 1x1 round brick is used to attach a pneumatic T-joint to the foot, making a strong ankle.

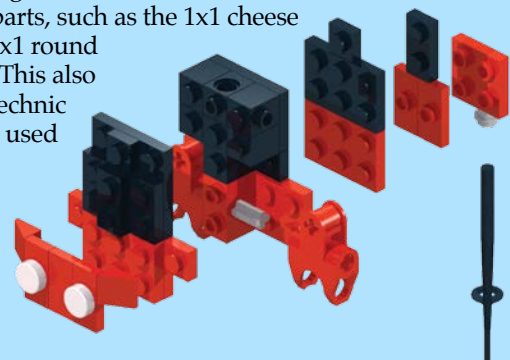
Feet

Mickey's feet are built stud forward with a 'hood' that is stud up for the ankle. This was done to allow slopes to shape the feet.

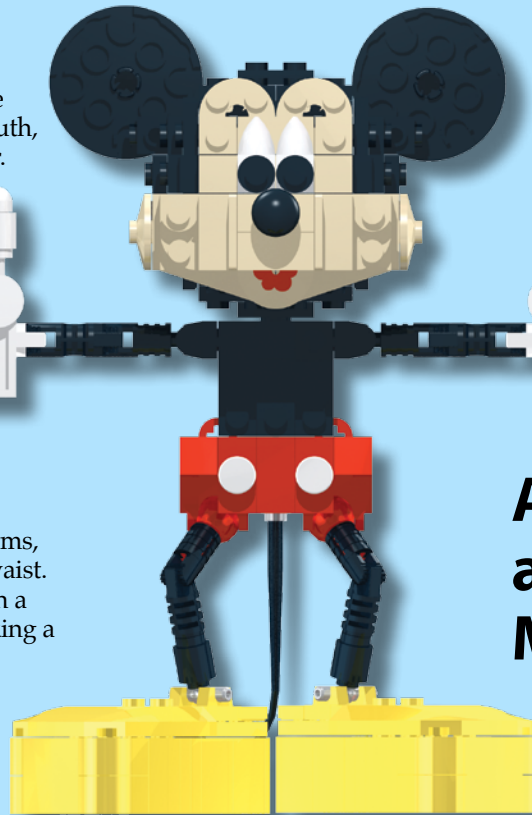


Body

Mickey's body is actually built sideways, with studs facing forward. This allows for smaller detail parts, such as the 1x1 cheese slope and the 1x1 round tile to be used. This also allows use of Technic ball joints to be used for the legs.



A Closer Look at Paul Lee's Mickey Mouse!





Dwarves Kili, Thorin Oakenshield and Fili from the Hobbit movies.

Eero Okkonen: Building Characters from the Hobbit to Metroid!

*Interview by Iain Heath
Photography provided
by Eero Okkonen*

BrickJournal: *Tell us a bit about yourself. What are you up to when you're not building with LEGO bricks?*

I'm Eero Okkonen, known online as "Pate-keetongu", a 19-year old AFOL from Finland, an odd country in Northern Europe. LEGO is my most beloved hobby, but I fiddle with other art forms too, most of them involving some sort of building (and sometimes painting). I also like hiking, paddling and reading, not to mention obvious things like humor, cinema, and doing strange things with friends!

What is Finland like for AFOLs? Do you have LUGs and conventions?

It's very good, and developing all the time. LEGO is rather expensive here and the nearest Pick-a-Brick walls are in Denmark, but the community is active and friendly. Finland has one LUG, *Palikkatakomo RY*, which is nationwide. As Finland is a relatively big country with a small population, we have no regular LUG meetings. But Finland has quite a few exhibits and conventions each year, two of which are purely for the LEGO hobby.

Many of your characters are built entirely from Bionicle elements, but you've also created characters using System bricks. How do you decide when to use one over the other, and what are the advantages and disadvantages of each?



Dwarves Bombur, Bofur and Bifur from the Hobbit movies.

Bionicle was a big thing when I was a lad, and in 2007 I joined *Bio-Klaani*, a Finnish Bionicle community. The Bionicle theme is now long gone and most of us have disappeared or grown up, but we still have something like twenty guys, most of whom are very good friends of mine, so I have always had a sort of inspiration for the Bionicle theme. But Bionicle parts have their limits (some of them are completely useless really) and they are not very handy when building human characters with realistic facial features, or heavy elaborate clothes, or characters with rare or new colors.

System builds are usually more static, and I tend to leave them in a somewhat neutral pose. But these days the new small ball-joint system allows for more poseable System builds, and curved slopes add flow to System builds.

But I do not tend to overthink all this, as building is the fun part and plans usually change anyway. For example, I'm currently working on Aikapoika ("time boy"), a sort of time-travelling steampunk alter ego of mine. The head is System and came out nicely, but the System torso didn't look good at all, and I was about to go with Bionicle legs; anyway, time will tell.



Dwarf brothers Balin and Dwalin.

Where do the ideas and inspiration for your characters come from?

I simply build things I'd like to see on my shelves, and most of my System-based characters are not original characters, but come from movies, comics, and books. My Bionicle MOCs however are usually from my own imagination—or from *Klaanon*, a giant multi-author Bionicle novel project on *Bio-Klaani* featuring cigars, moustaches, orange transparent chainsaws and steampunk airships! (*Klaanon* even has its own trading-card game and fictional language; nerdy stuff, and everything in Finnish.)

As some people might have noticed, I also like building female characters with Bionicle parts. They are a particularly interesting subject and those pieces work well with flowing shapes—things that are hard to achieve with basic blocks.

Early on, I browsed Brickshelf for inspiration—it's an old site but there's lot of jewels that don't get blogged much, especially when it comes to

Asian builders. I picked up a handful of tricks from them, but have also developed my own while coming up with my own designs—such as using tan skeleton arms as fingers, or *Rahkshi* back armor as thigh armor on female characters.

*A while ago you embarked on an ambitious project to build all the main characters from the **Hobbit** movie trilogy, for which you adopted a very different building style. What has it been like to model existing characters, rather than ones from your own imagination?*

The project wasn't intentional. It all started with a simple bust of *Balin*. He's my favorite dwarf design and Ken Stott's voice just ices the cake. I got some ideas for his cloak also, so I built the whole figure, and his little brother *Dwalin* to accompany him. The ball started rolling, and I got the idea of handcuffs for *Oin's* beard, cheese slope magic on *Bifur's* beard, and so on. When I had made about five, I thought it would be natural to build the entire gang (they had become quite popular too). Then somebody asked if I would build *Bilbo* and *Gandalf* and I thought "why not?", as they are so iconic and it would be interesting to scale the dwarves with *Gandalf*, who is significantly bigger.

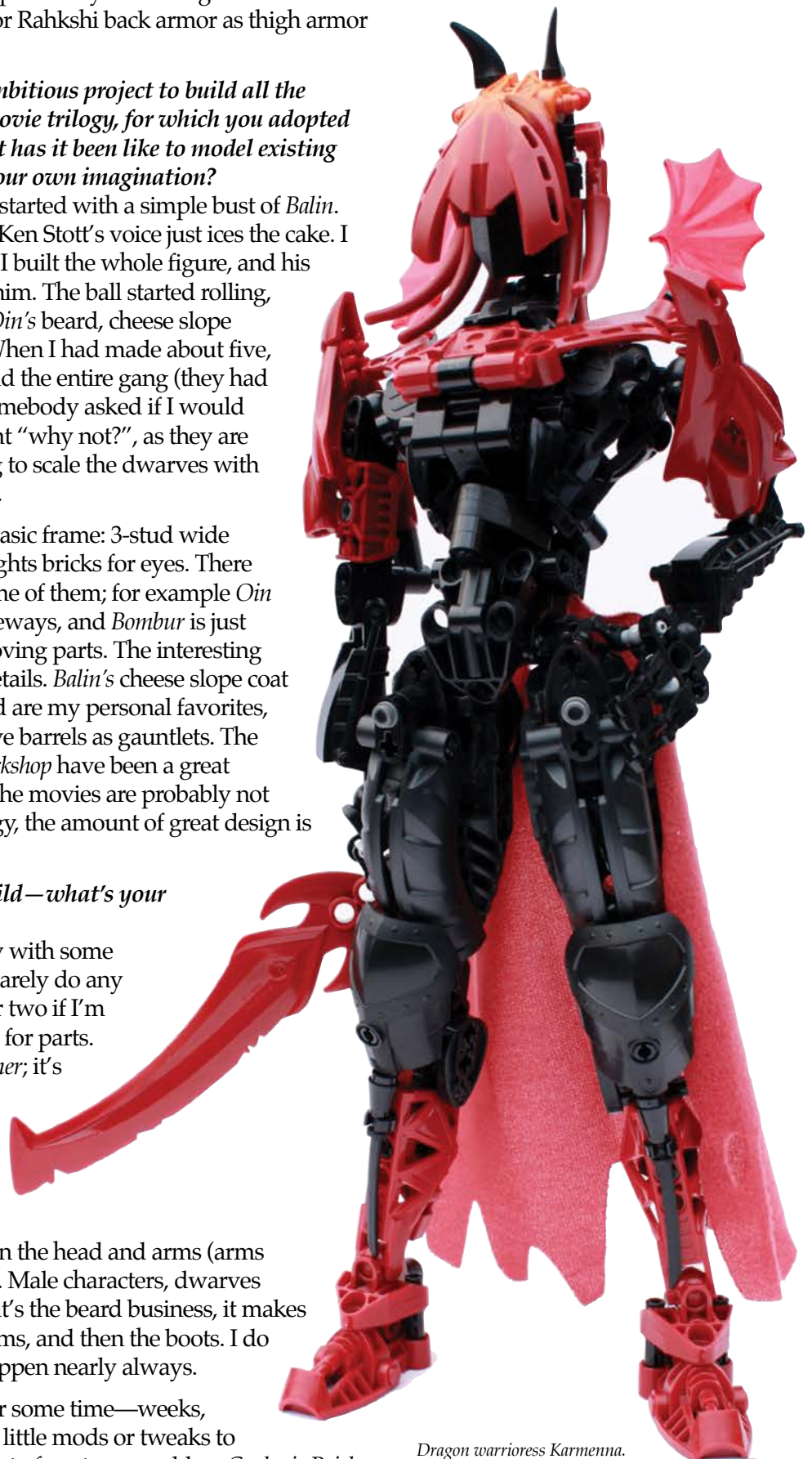
Most of the dwarves use the same basic frame: 3-stud wide head, 8-stud wide torso, and headlights bricks for eyes. There are internal differences between some of them; for example *Oin* and *Balin* are built mostly studs-sideways, and *Bombur* is just all-around studded without any moving parts. The interesting parts are the beards and costume details. *Balin's* cheese slope coat mosaic and *Gloin's* chicken leg beard are my personal favorites, and something like half of them have barrels as gauntlets. The *Hobbit Chronicles* books by *Weta Workshop* have been a great source of inspiration. Even though the movies are probably not as good as the *Lord of the Rings* trilogy, the amount of great design is overwhelming.

How do you approach each new build—what's your process?

I usually have a basic idea, probably with some particular piece use or technique. I rarely do any doodles, but might draw a sketch or two if I'm away from my collection or waiting for parts. I've never liked *LEGO Digital Designer*; it's just somewhat awkward. It's especially hard to make detailed plans with Bionicle builds, as those parts are strangely shaped.

I usually start female characters with the legs, then the torso and then the head and arms (arms are usually easy on Bionicle MOCs). Male characters, dwarves especially, begin with the heads (that's the beard business, it makes the character), then the torso and arms, and then the boots. I do not know why, but that seems to happen nearly always.

I keep finished MOCs on display for some time—weeks, months or years—but tend to make little mods or tweaks to them afterwards. There are quite a lot of posts on my blog, *Cyclopic Bricks*, with updated versions of old creations. Sometimes the tweaks make



Dragon warrioress Karmenna.



Samus Aran, from the Metroid video game.

the creation significantly better, so it'll be worth posting again.

What would you say are the unique challenges to building characters in LEGO compared to, say, buildings or vehicles?

LEGO bricks are not ideal for building things with lots of organic detail in a small space. Faces without humorously odd features are hard, so it's often best to make simple stylized faces. Clothes are another challenge, as they are flowing and flexible, which is pretty much the opposite of a plastic brick. Special parts like sails and capes can be used to create clothing, but sometimes it's still the best idea to use basic parts. On my dwarves project I have had to achieve very different textile patterns, from fur and leather to rugged cotton.

We gather you are a huge steampunk fan! Is your interest in steampunk what drives you to build?

My interest in steampunk comes from the movies of *Hayao Miyazaki* and a love for brilliant mechanical apparatuses. That can be seen in both my character and non-character builds, Bionicle or System. But the truth might be that a love for building with LEGO actually drives my interest in steampunk, as it's a fun theme to work with, combining whacky gadgets with grandeur and a feel of the "good old times". You can't go wrong with friendly mutton chops, elaborate vests and mazes of brass pipes, right?!

What kinds of official LEGO sets do you like?

I buy sets mostly for parts and get most of my bricks from Bricklink anyway. The quality of the set designs seems to have gotten a lot better during the recent years, but I'm running out of shelf space with MOCs already, so I'll leave them for the collectors. The *Mixels* line is probably my favorite of the current ones. The *LEGO Movie* theme had some interesting sets too.

Are there any themes, parts or colors you wish LEGO would produce?

Getting more parts in earthy and metallic tones would be great. And a steampunk theme would be ace! I'd love to see how set designers imagine steampunk sets and minifigures. *Monster Fighters* was quite close, and it has been one of the best action themes in the last few years. Sadly it lasted only for one wave.

When it comes to parts, it's the basic dream parts: inverted cheese slopes, more round arches, inverted round slopes. And red wizard hats—that mold has been around for 21 years and never been released officially in red.

What direction do you see your LEGO building going in the future? Will you continue to focus on characters?

Sure, I think I'll stick with my "every scale goes" ideology or something like that. I currently have 16 works under construction and around half of them are character builds, both from popular culture and my own imagination. **b**



Ragnfast, a Viking warrior.



Miss Izzy Orchard.



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Go to Japan with articles on two JAPANESE LEGO FAN EVENTS, plus take a look at JAPAN'S SACRED LEGO LAND, Nasu Highland Park—the site of the BrickFan events and a pilgrimage site for many Japanese LEGO fans. Also, a feature on JAPAN'S TV CHAMPIONSHIP OF LEGO, a look at the CLICKBRICK LEGO SHOPS in Japan, plus how to get into TECHNIC BUILDING, LEGO EDUCATION, and more!

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LEGO PLANE BUILDING! Top builder RALPH SAVALESBERG takes off with his custom LEGO fighter models, there's a squadron of articles on Sky-Fi planes by FRADEL GONZALES and COLE MARTIN, find instructions to build a Sky-Fi plane, plus our regular feature on minifigure customization by JARED BURKS, AFOLs by GREG HYLAND, other step-by-step "You Can Build It" instructions, and more!

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LEGO ARCHITECTURE with JONATHAN LOPES, a microscale model of Copenhagen built by ULRIK HANSEN, and a look at the LEGO MUSEUM being constructed in Denmark! Plus Minifigure Customization by JARED BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, BrickNerd DIY Fan Art by TOMMY WILLIAMSON, MINDSTORMS building with DAMIEN KEE, and more!

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Building LEGO bricks WITH character, with IAIN HEATH and TOMMY WILLIAMSON, Manga-inspired creations of MIKE DUNG, sculptures by Taiwanese Brick Artist YO YO CHEN, Minifigure Customization by JARED BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, BrickNerd DIY Fan Art by TOMMY WILLIAMSON, MINDSTORMS building, and more!

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LEGO ARTISTRY with builder/photographer CHRIS McVEIGH, mosaic builders BRIAN KORTE, DAVE WARE and DAVE SHADDIX; and sculptors SEAN KENNEY (about his nature models) and ED DIMENT (about a full-size bus stop built with LEGO bricks)! Plus Minifigure Customization by JARED K. BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, MINDSTORMS building, and more!

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BRICKJOURNAL #33
LEGO ROBOTS! A talk with MINDSTORMS EV3 builders MARC-ANDRE BAZERGUI and ANDY MILLUZZI, designer LEE MAGPILI, CHRIS GIDDENS with his amazing robot sculptures, plus Minifigure Customization by JARED BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, BrickNerd DIY Fan Art by TOMMY WILLIAMSON, other looks at MINDSTORMS building, and more!

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Kevin Ryhal: Building Characters from a Galaxy Far, Far Away...

Interview by Iain Heath

Photography provided by Kevin Ryhal

Kevin's model of Boba Fett. All Star Wars characters TM & © Lucasfilm Ltd.

A long time ago (well, 1974) in a galaxy far, far away called Ohio, Kevin Ryhal (aka "Moodswim") was born. Ever since he could hold a pencil, Kevin loved to draw and create—mostly space battles inspired by Star Wars. After studying graphic art in high school, he went on to study Fine Arts at Kent State University. Knowing that most people consider this a "useless" degree, he later focused on printmaking, hoping to land a job at a print shop (which he didn't). A few years later, the release of the LEGO Star Wars theme would ignite his passion for LEGO building. From there, collecting turned into customization, which turned into building models from scratch. Since then, "Moodswim" has appeared in the STUDS collectible card series, and even had his work featured on Rebrick, LEGO's official site for showcasing MOCs. In addition to drawing, Kevin also dabbles in sculpture, photography and filmmaking.

BrickJournal: *It's clear from your creations that you're a massive Star Wars fan! What in particular do you like about Star Wars?*

Kevin Ryhal: I remember watching the first *Star Wars* movie (that's *Star Wars Episode IV: A New Hope* for you newbies) in the theater as a kid and just being completely blown away. Here was this sci-fi sorta fairy tale with action, adventure, a bit of romance, and most important, a lot of fun. I'd never seen anything like it. It's a story of good versus evil, father versus son, where "the bad guy" ends up saving everyone in the end. Needless to say, my entire life and my personal philosophies have been influenced by this story and the lessons it teaches.

Do you collect any of the official Star Wars LEGO sets?
When the LEGO *Star Wars* theme started, I tried to buy every set I could get my hands on, and did so for the next few years, proudly displaying my collection for people to see. Eventually, I started to run out of storage space and (more importantly) money. As my building skills improved, I realized that if I wanted a particular set, I could probably just build my own version at some point, so I stopped buying them.

When you decided to start creating Star Wars MOCs, what made you choose brick-built characters rather than vehicles, spaceships or dioramas (like so many other builders)?

A lot of what I do is reactionary. That is, I see what others in the community are trying and building, and I try to do something different. My goal as an artist, before I even got into LEGO, was to be original and stand out from the crowd. Also, the characters are what drive the story, not the ship they fly or the locations where things happen. Besides, there are already plenty of builders who make vehicles, spaceships and dioramas.

Your creations seem to focus more on the 'original' Star Wars trilogy or recent Clone Wars TV show, than on the prequel movies. Are there certain parts of the Star Wars 'canon' that you are most fond of, and any that you dislike?

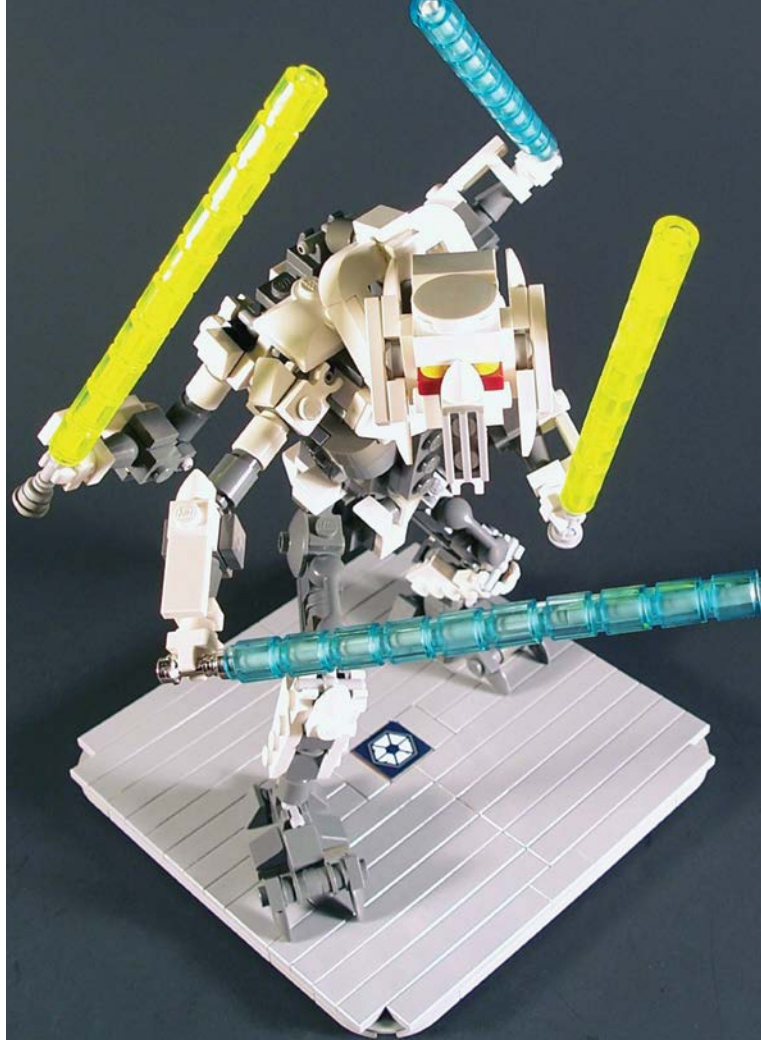
I'm an Original Trilogy fan all the way! I grew up watching those movies to the point where they're ingrained into the core of my being. I always wanted to be that scruffy-lookin' nerfherder flying around in my hunk-of-junk spaceship saving princesses in distress. The prequels and the *Clone Wars* shows offer some nice eye candy, but the most important story takes place with Luke Skywalker and the gang.

Obviously, I have some favorite *Star Wars* characters and scenes, and that comes into play when I choose who I want to build. Also, I always try to challenge myself when I build a new project, so characters and/or locations that are harder to recreate in LEGO intrigue me.

You build characters in a variety of different scales. Can you explain them?

When I started building characters in LEGO, I thought back to the action figures I collected as a child. I wanted to recreate those kind of figures in LEGO. I started studying several Mecha builders like Phong Chang to learn how they made such cool and infinitely poseable creations. It had to do with combining the "pneumatic T-joint" part with various clip plates.

My first figure in that scale was General Grievous (still one of my favorites). My screen name is "Moodswim" so each scale I build in is a derivative of that. I got the idea from another builder who commented "this figure is like Miniland scale but bigger and more detailed—it's like Mood scale!". So I combined the two and named it "Moodland scale".



General Grievous.

Clone Trooper.





Two versions of an AT-RT by Ryhal: a Moodland scale (left) and a Chibi scale (right).

I have other scales, which I call Micro-Mood scale (smaller even than a minifig), Midi-Mood scale (slightly larger than Moodland scale), Mega-Mood scale (about 12 inches tall) and my newest scale, Mini-Chibi (half the size of my Chibi figs). I know, I'm kinda crazy with these scales, right?

Tell us more about your 'Chibi' characters. What inspired you to take your Star Wars builds in that direction? Is building Chibi characters very different from building 'proportional' characters?

My Chibi scale was inspired by a Hasbro toy line called *Galactic Heroes*, where *Star Wars* characters are reimagined as cute childlike versions of themselves. I thought this would be a fun idea to try in LEGO. Being familiar with Manga/Anime, I studied up on "Chibi" (Japanese for "childlike") which looks very similar to the Hasbro figures. So the design is basically a *really* large head, hands, and feet and a smaller out-of-proportion body. The result looks like a little kid playing *Star Wars* dress-up. The joint design I use is similar to my Moodland scale figures, but with fewer joints in the limbs... and of course, a really large head!

Do any of your builds stand out in your mind for any reason?


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Probably one of the more challenging and complicated builds would be my Moodland scale

scene *Trapped In The Trash Compactor*. You'd think building a room full of random garbage would be simple, but it wasn't at all. I also had to special-order a *ton* of brown bricks for that one. But I think I'm most proud of the figure that started the Moodland scale idea in the first place, my General Grievous figure. Although he's not an Original Trilogy character, he was quite a challenge to fit in all his cybernetic details and give him the proper evil look.

What other Star Wars characters—or characters from other themes—do you hope to explore in the future?

There are a few characters I haven't been able to recreate successfully in LEGO yet. I haven't been able to build a good R2-D2 or a good Stormtrooper design. It's pretty aggravating! I'd like to try some more *Star Wars* steampunk designs, and I'm planning to build a Moodland scale AT-ST (with pilots) at some point.

I actually have built figures in a few other themes already including Gundam, Transformers, G.I. Joe, Terminator, Aliens, The Walking Dead and super-heroes like the Avengers, X-Men and Batman. I plan to continue building characters from TV, movies, and comic books. I will also be starting a Facebook page called Moodswim's Sea Of Dreams, offering images of my builds on shirts, keychains, and posters. 



A Scout Trooper by Ryhal: a Moodland scale (left) and a Chibi scale (right).



Darth Maul in Moodland scale (left) and in Chibi scale (right).



You can go to Moodswim's Sea of Dreams at this website <https://www.facebook.com/groups/675297652554061/> or by scanning the QR code to the left!

Nick Vas: From Bionicle to Character Building

Interview by Iain Heath

*Photography provided
by Nick Vas*

Nick Vas grew up in Auckland, New Zealand where he studied Engineering and Science at university. He first discovered the online LEGO community in 2007 (through BZPower) and was soon participating in LEGO shows across New Zealand with the country's newly founded LUGs in 2012, AucklandLUG and LUG4/2. But his involvement in the LEGO community really kicked off in 2012 when he joined Team Jigsaw, a group of like-minded builders competing in the MOCpages "MOC-athlon" contest. Team Jigsaw would later go on to create the very popular LEGO Ideas projects "Thinking with Portals" and "Adventures of Steamrod" (of which "Thinking with Portals" received the 10,000 votes necessary to be considered as candidates for future LEGO sets). In January 2014, Nick moved from New Zealand to Billund, Denmark to begin work for LEGO as a Junior Product Designer for the Ninjago theme.



Nick's Tribull strikes a pose.

In the beginning I understand you were a big Bionicle fan. How has that shaped your approach to building?

Starting with Bionicle rather than System has been a massive influence on my building style. Bionicle has a lot of limited and highly specialized pieces, so using pieces creatively and in unusual ways is an essential trait of Bionicle characters, even in official sets. Masks can be repurposed as armor shells, and feet can be flipped to form faces. Since I was one of the few Bionicle builders in New Zealand, I had the advantage of being able to find very cheap second-hand collections online, compared to System collections!

Your building style is unusual in that you use a lot of non-standard connection techniques and unusual parts (such as LEGO elastic bands for your Tribull character). How did you develop this overall approach, and why do you like it?

My building approach stems directly from a Bionicle building style, but expanded to include System and whatever unusual pieces I could find from Bricklink, such as old Technic parts, Klikits, or even Galidor. I enjoy using non-standard techniques since they can allow lots of detail in small spaces, by connecting pieces that were never intended to work together. When looking at other people's MOCs, I enjoy discovering new pieces and trying to figure out how the MOCs are put together, so I aim to include the same experience in my own MOCs.

I switch styles as much as possible to challenge myself to learn new techniques, but also because style choice has a big impact on the object or character you're trying to create. Some characters lend themselves much better to particular styles or scales, often due to part availability. I usually choose a more traditional brick style for

human characters since it's extremely difficult to build a non-stylized human head that doesn't feel uncanny and creepy.

Your characters tend to be completely original, rather than taken from other sources. Where do you get your character ideas and backstories from? Does the character drive the build, or is it the other way around?

Most of my characters are based around a particular technique or "table-scrap" and a very vague idea of character. I almost always start with the head, since the face is the most important element for conveying character and emotion. How the head turns out determines most of the style and scale for the rest of the build, which is much more flexible to minor detail changes. I form backstories alongside the building process, which influences the smaller details such as accessories and posture of the character. As much as possible, I think it's important for the backstory to be visible in the MOC itself, rather than being confined to a separate description.

Original characters are definitely more fun to create, since they're able to evolve to match more exciting building directions as you find them. While still an excellent challenge in its own way, building an existing character or even having a strong vision of the character you want to create puts restrictions on what pieces do and don't work for a MOC.

Tell us about your LEGO part collection. How do you acquire the bricks you are going to need for each build? Do you plan ahead, or tend to improvise with what you already have?

I source bricks from all locations. Second-hand auctions are great for cheap bulk bricks, while I often buy new sets to flesh out my collection of modern bricks and colors (selling the minifigs to recoup costs). Bricklink is great for sourcing weird pieces to experiment with or the final pieces needed for an important project. When buying pieces I need from a Bricklink store, I will sort all the store's parts by price, and buy bulk quantities of the cheapest and most unusual parts. Every piece has a perfect potential use, and you're more likely to find them if you have a workable quantity at hand.

I do my best to avoid buying pieces for specific projects, both due to cost and the time constraints of waiting for an order to arrive (usually around 2-3 weeks in NZ). Looking for alternative options usually reveals more creative and interesting solutions than the first choice that sprung to mind. I often find that if a build goes smoothly and fast, it is worthwhile to rebuild it almost from scratch now that I have a clearer understanding of the character. If the character isn't too large, it's worth the time to add an extra level of detail and to clean up and strengthen the design.

Do you have any "go-to" parts?

My favorite pieces include the tow-ball pin connector, black "Travis" bricks and Exo-force clip hands. They're easy to fit into small spaces, connect well to other pieces, and create many interesting angles for other parts to attach to.



Mary Poppins, as seen by Nick. TM & © Walt Disney Productions.

A Nick-built character does stand-up comedy!





Minecraft characters by Nick.



A lot of builders have attempted Minecraft characters, but yours are some of the best we've seen. What inspired you to have a go at this? Did they present any particular challenges?


Minecraft fits with LEGO in much the same way that pixel-art does... With a bit of SNOT and brick-math, it's possible to match the exact Minecraft dimensions, especially when the head is scaled at 8x8 studs. I was inspired by the Minecraft character builds of Evan "Lego Junkie", which are at the same scale. I wanted to add ball-jointed articulation and accurate pixel texturing, which involved a lot of compromises, but I think I ended up with a good balance.



Borris the Jigbot!



Tell us about Borris the “Jigbot” and his friend Argali. How did the idea for Jigbots come about, and how did you come up with their unique head design?

Jigbots stemmed from wanting to create an expressive character like Tyler Clites’ amazing E-mote. LEGO magnets allowed me to attach eyes and eyebrows in a wide variety of expressions to the *Star Wars* planet pieces, which made a fantastic Muppet-like mouth and head. This laid the foundation for a highly excitable and unstable personality, influenced by the theme of the planet. And LEGO makes 12 different planet designs, so I will definitely be making more Jigbots in the future! 

Argali the Jigbot.



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FUN WITH LIGHTS

The image shows a collection of LEGO bricks with internal lights. On the left, there is a clear brick with a blue light and a red brick with a red light. On the right, there is a larger assembly of bricks with various colored lights (blue, red, yellow, green) and a black base. The background is dark with small, colorful lights.



Shawn's model of Altair, the lead character from Assassin's Creed, a popular video game.

Shawn Snyder: Building Characters of Video, Movies and Comics!

Interview by Iain Heath

Photography provided by Shawn Snyder

Shawn Snyder is a 42-year-old mechanic and machinist from the Seattle area. He's a self-professed gamer, comic book reader, sci-fi fan and Anime fan whose unique style of character building has been a mainstay of BrickCon since 2008.

BrickJournal: *How did you get into creating LEGO characters, and where do your ideas and inspiration come from?*

Shawn Snyder: I started building as a child, and continued into my early teens. During that time I never really had enough LEGO to make the things I wanted, and the variety of pieces were rather limited. I was inspired to build once again after going to BrickCon, and seeing all the mind-blowing things that people had made—and all the new colors and pieces that were now available! I like the challenge of building organically to make something look life-like out of all those little assorted plastic pieces.

My builds are inspired by video games, comic books, and sci-fi movies. In fact, I'm a big console gamer. If I'm not building LEGO, I'm gaming. I generally like the first-person shooters, open-world RPGs, and action-adventure games. Right now I am playing *Skyrim*.

Your character creations are some of the largest and most detailed we've seen! How do you approach each new build, and how do you determine the scale?

When I approach a build, the first thing I consider is my color assortment: what colors to use and do I have enough variety of pieces in that specific color. Sometimes before I have an idea of a character, I'll look at the colors first and think of the character with those colors, such as a super-hero.

I always start the build with the head, particularly the eyes. The head will set the scale for the body. I'll make the head



the size needed to accommodate the details. If I'm about 80% pleased with the head, then I'll move onto the body. It's basically a head-to-toe type of approach.

What are the main challenges with building characters this big?

Anatomy and structural integrity are key factors. I try to make anything I build as strong as I can. The larger the character, the harder it is for the joints to support the weight, which leads to sacrificing poseability. The hips are always a real challenge because they have to support a lot of weight in a small area.

For larger characters, I tend to use Technic pieces inside the core of the body. Usually the core ends up looking like a block, and then I just start adding to it one side at a time, starting with the chest, then the sides, then the back. For the joints it's usually a combination of ball joints and the click joints that came in the ExoForce sets. If the model is heavy, I'll pose it how I want it and then I'll build around the joint.

As well as figures, you also build a lot of busts. What's the attraction to building busts, and how do you decide when to build a bust of something versus a figure? Are busts easier or harder to build?

I like building a bust because of all the extra details you can put into the head and the face. It's a nice break from the figures because I don't have to deal with the frustration of the joints to make something stand or pose. The busts are definitely easier.

Do you ever have several projects on the go at once?

I always have ideas for multiple MOCs in my mind, but I usually just try to focus on building one MOC at a time.



More photos of Altair.

Assassin's Creed and all related characters TM & © Ubisoft.



Kratos, from the video game God of War. TM & © Sony.



Otherwise my Lego ADD will kick in and I'll start several things and never finish any of them!

Which figure has been the most challenging to build so far?
They all have their own challenges. Venom vs. Spider-Man was probably the most challenging because I had two characters that I wanted to have fighting each other. The problem was when they were on display, you would either see the front of one character, or the back of the other. I could never get it to work just right, so I decided to have a beat-down Spider-Man with Venom standing over him. That way both characters could be seen as much as possible when it was on display. The real challenge was in Venom's legs. I had to come up with a different approach in building the legs and attaching them to the hips, because I wanted him to look more lifelike in a crouching position. This meant I also had to come up with a way for the ankles to be able to support the weight of the body.

And which one was the most satisfying to build?
Kratos from the video game *God of War*. This was the first character I made with a human muscular build. I enjoyed

Venom and Spider-Man. TM & © Marvel Characters, Inc.





Locutus and a Borg Drone. TM & © CBS/Paramount.

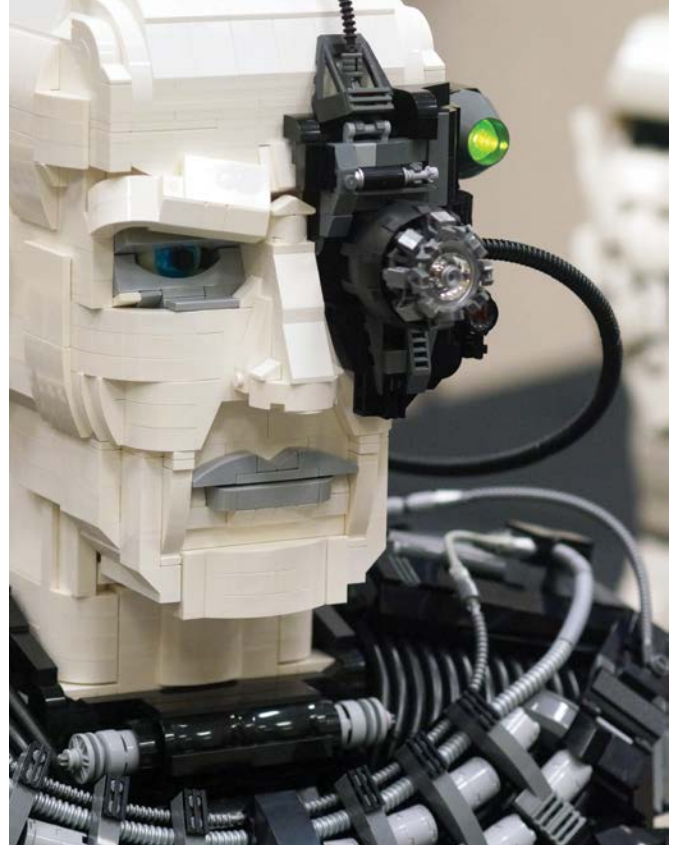
trying to sculpt and mold the body to represent the muscles as accurately as I could and also manage to incorporate the large red tattoo that covers a large portion of his upper body.

So of all your amazing creations, which one would you say you are the most proud of?

I would have to say my Trophy Armor Predator bust is the one I'm most proud of. Predator is one of my favorite movie creatures. I really enjoyed trying to capture all the details in the face and the mouth. Sometimes when I start a project, I don't always know if it will turn out like I envision it, but with this one, everything seemed to work, and I feel I really captured the essence of the creature. **b**



Shawn's Trophy Armor Predator. TM & © the respective owner.



Locutus at BrickCon 2013.



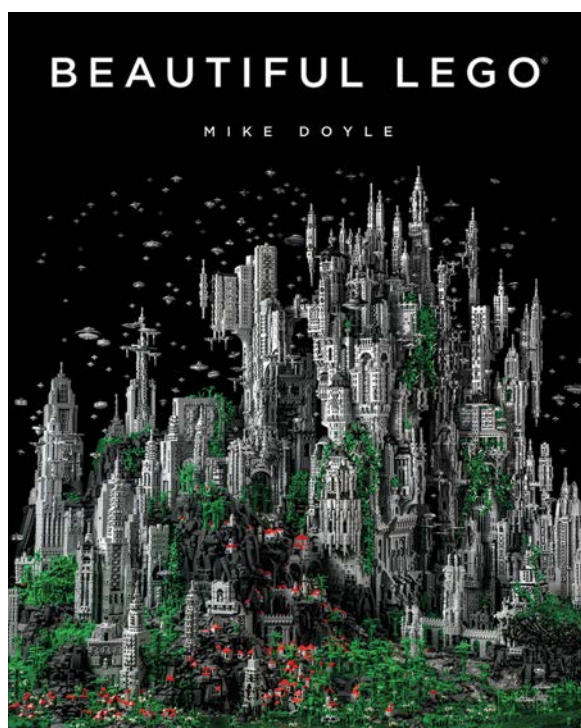
A closer look at the Borg drone.

Book Reviews

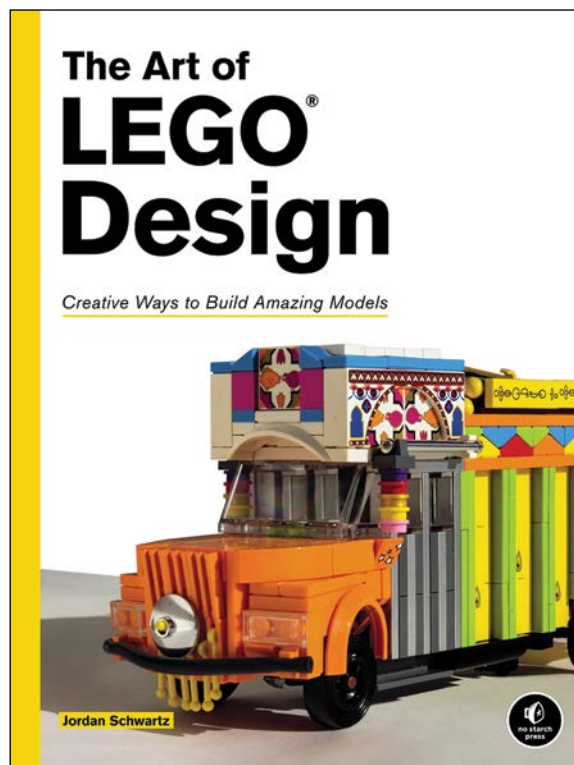
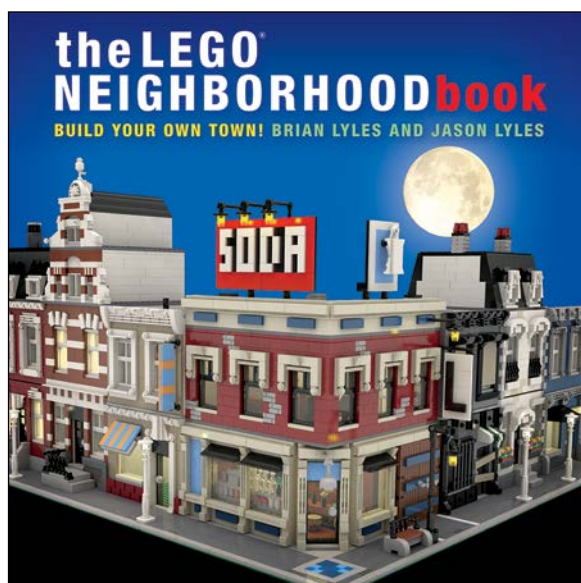
A Little Something for Everyone

Review by Geoff Gray

Photography courtesy of No Starch Press



There has been a flurry of books being released over the past few years about LEGO and the amazing things people can do with this remarkable toy. It seems like everyone is jumping on the bandwagon and discovering the beauty of creating with LEGO. For proof, just look at the growth of the company. Their sales have grown seven-fold in less than ten years and they are officially the largest toy manufacturer in the world. No Starch Press, a small publisher in San Francisco, California has been releasing books at about the same rate as LEGO has been releasing new sets. You can find books on very specific topics like Mindstorms robotics, Technic design, and how to design a working LEGO firearm, or you can get some more generic books like *The Cult of LEGO* (co-authored by my boss and the founder of *BrickJournal*) which talks about being a LEGO Fan. In this article, I have chosen three books to cover. There's plenty more out there and I would recommend checking out No Starch Press' website to see some other books on the way (<http://nostarch.com>).



Upper Left: *Beautiful LEGO* by Mike Doyle. Lower Left: *The LEGO Neighborhood Book* by Brian and Jason Lyles. Above: *The Art of LEGO Design* by Jordan Schwartz.

Beautiful LEGO

This book really struck me when I first saw it because it seemed more like a coffee table book than the typical books about LEGO artwork. Mike Doyle is internationally known for his creations and does not disappoint in this collection. The cover features a model that uses over 200,000 elements that depicts a fantasy cityscape. It really sets the stage for what's inside, not because of the size of the model, but because of the regal presentation it makes. Mike's "Abandoned House" series is featured inside the book, as well as other artwork of all kinds of sizes and depicting all kinds of topics like statues, cities, food, and even a small rotary telephone. Mike and NoStarch have done a wonderful job of assembling some great models and putting them together in a book you can leave out on your coffee table.



*Some of the artwork from the book Beautiful LEGO
(photos courtesy of No Starch Press)*

Top: Rotary Telephone (Chris McVeigh)

Left: Bullet through an Apple (Tom Simon)

Bottom: Abandoned House (Mike Doyle)



The Art of LEGO Design

One of the newer releases from No Starch Press, *The Art of LEGO Design*, was written by a former designer for The LEGO Group's Creator/Creator Expert team: Jordan Schwartz. The book is laid out in a thoughtful and logical way that makes it easy to follow for newer fans of the brick, yet also easy to use as a reference book for more experienced builders. He sets up the purpose of the book nicely in the first couple of pages, making sure the reader knows what to expect and how to get the most out of the book.

Jordan reached out to several other people (AFOLs) and has dedicated a section in the book to each of these people. In these sections, Jordan includes interviews and models from them. Each author/builder section uses a different color for the background of the pages so you can easily tell what work is Jordan's and what is from other people. There are not a lot of instructions provided, as the idea of the book is to help inspire you to design your own creations. The few that are included are for fundamental building blocks (such as the Lowell Sphere on page 102), which can then be used as a base for other items. I do not mind the lack of instructions though, since the book contains a lot of photographs which offer help. It is worth noting that the pictures and graphics in this book are exceptionally clear and easy to see.

Jordan starts out the book focusing on key things to remember when designing, planning, or even just thinking about your next build. He touches on the development of "LEGO Eyes", which is a way of looking at the real world with LEGO elements and colors in your mind (essentially people who develop this skill have the ability to subconsciously transform what they are looking at into LEGO objects). He also references things to remember about colors, shapes, and "essential" elements (such as a 4L Bar) as well as places to consider their use.



NAMING CONVENTIONS - Jordan references a couple of elements by names I have not heard of before. The 1x1 Brick with hollow studs on all four sides is (in this book) called a "Travis Brick." I have not heard of that name. Also, he refers to 1 x 1 x 2/3 slope as a "Cheese Slope." I have always heard of these elements as "Chicklets" (as in the brand of chewing gum). However, these differences do not detract at all from the book.



A picture I took from the book showing the blacklight photo of a scene and the resultant image when using Photoshop to display the image as a film negative.

After the intro chapter, Jordan breaks the rest of the book into chapters based on topics like Minifigs, Patterns, Dynamic Sculpting, Space, proportions, animals, etc. He has a chapter on lighting, which includes some third party lights, and a really cool idea of building a model using photo-negative colors, then taking a picture of the model with a black-light and using Adobe Photoshop to convert the picture into a photo-negative render, which then puts the final picture back to normal (although the change is very subtle, the final effects are very cool. I will be trying this out when I get a chance). Jordan uses several different LEGO themes throughout the book as well, like city, space, castles, ships, mosaics, scenery, etc.

He has a two-page spread on LEGO furniture, showing models from Michael Jasper. These models (especially the grand piano) are simply amazing. Also, the quality of the photography in the book is excellent, and the print quality of the book is clear enough that you can see very minute details in even smaller pictures. For instance on page 215, there are 7 different pictures, including the grand piano. The photo of the piano is clear enough that I can easily see the Minifig arms and Technic half-bushings used to make the piano casters.

My favorite section in the book is on LEGO Mosaics. I have been designing and creating mosaics for a long time, and there were techniques in here that I had never seen before. He worked with Katie Walker, showing several of her works where she uses Cheese Wedges ("Chicklets") turned sideways and plate/tile combos to create some extremely impressive designs.

There are a ton of cool items and sections in this book, and they all have good example models, as well as nice write-ups to help both aspiring LEGO artists and those that already know a great deal. While the book can be used simply as "read cover-to-cover," I will use it heavily as a reference book as well. This is another exceptional book from No Starch Press, and well worth the money.

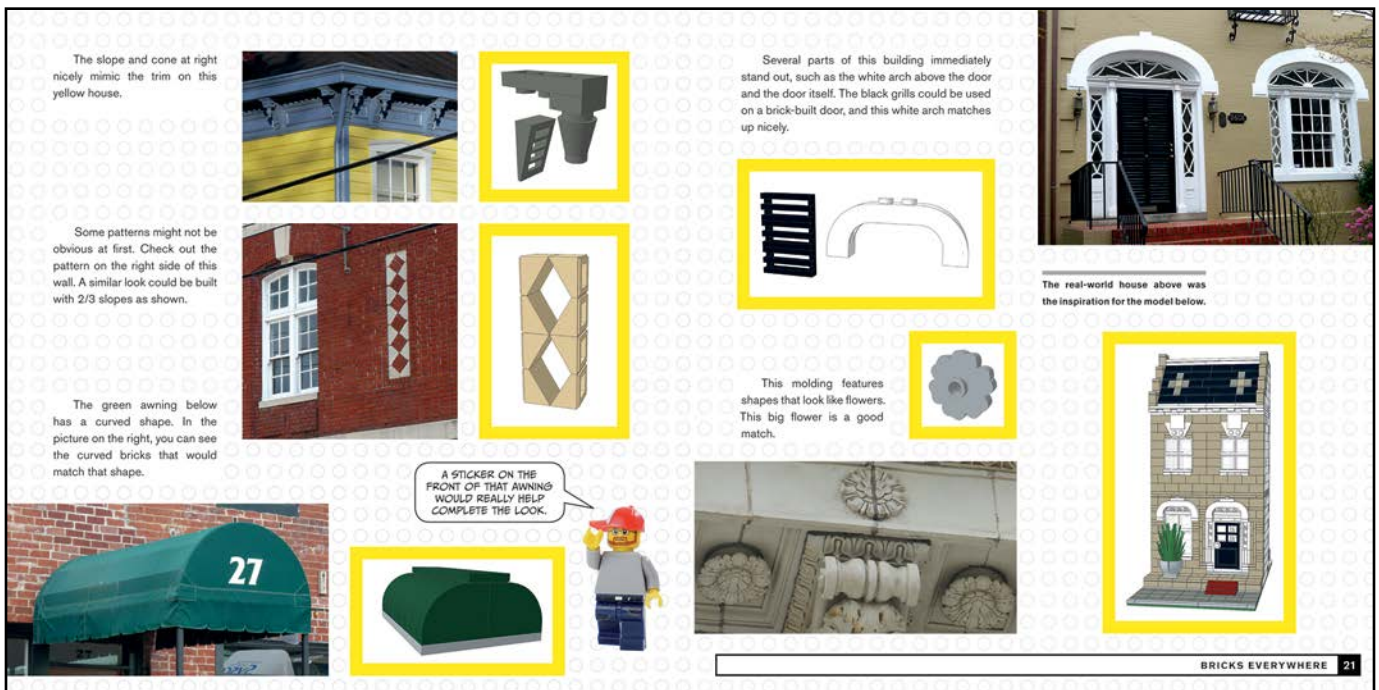
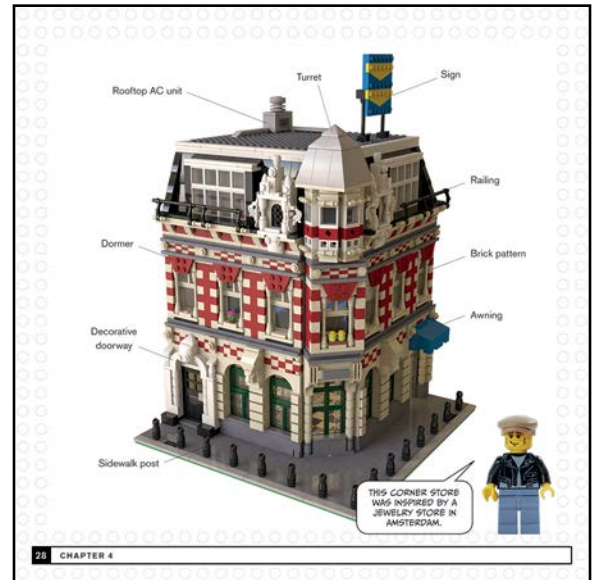
The LEGO Neighborhood Book

While I was writing the review for the new Parisian Restaurant set from The LEGO Group (<http://www.brickjournal.com/view/article/436/>), I came across an ad for this new book from No Starch Press about creating modular buildings similar to the sets like the one I was reviewing. I got a copy of the book and took a look. I found the book to be very useful for people who are starting out with the idea of modular building and creating detail. The book is laid out in a fairly straightforward manner, utilizing a chapter called "Getting Started with the Café Corner Standard" which shows the things to consider when designing a model that will integrate with others. It talks about the Technic connector locations, the sidewalks, depths and heights, stackable levels, and even mentions Bricklink for those who might need to buy some extra elements.

Chapter 3, "Bricks Everywhere," talks about thinking with an eye for detail (similar to "LEGO eyes" from the review above), and there are a few nice examples of how to create interesting decorative patterns like the diamond brick accent on page 20 that is made with LEGO "Chicklet" pieces (see page sample below). The authors decided not to show you how to build the pieces into the set, which may be a good thing or a bad thing. It would be easy enough to figure out how to create the mounting for these pieces, and by not showing that part, they are really forcing you to focus on the design and not the construction. However, less experienced builders might need to try out a few different ideas or research more to come up with good mounts.

Chapters 4 and 5 round out a lot of good info on details and interiors, but Chapter 6 is my favorite. It showcases some of the author's modular buildings and gives you some great ideas for your own designs. I particularly like the Architecture Firm's corner office building on page 76.

The last 2/3 of the book is dedicated to instructions for two different models. The first is a corner drugstore and the second is a house that has a base foundation, but includes instructions for building it with one of three different facades (Parisian Apartment, Colonial Row House, Canal Ring House).



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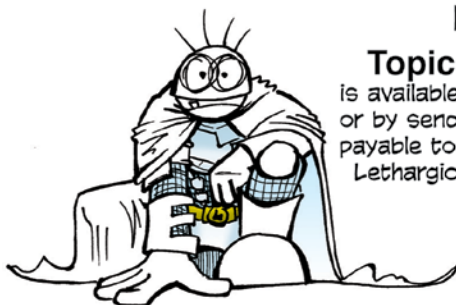
Hey Kids! Comics!

by Greg (AFOLs) Hyland

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Last Word

So ends another issue of *BrickJournal*, and it's been fun. This issue would be a little lacking if I didn't include some Bricks of Character type creations from the LEGO Master Builders themselves, and I just happened to see a few at San Diego Comic-Con. There were life-sized models of Rocket Raccoon and Groot from *Guardians of the Galaxy*, and at the presentation for *LEGO Batman 3* game, Wonder Woman was one of the minifigures that was onstage. But there were more—a *lot* more.

Hope you enjoyed all of the creations and people we talked to here—and we'll be back next issue! Til, then, later! 



Rocket and Groot. TM & © Marvel Characters, Inc.

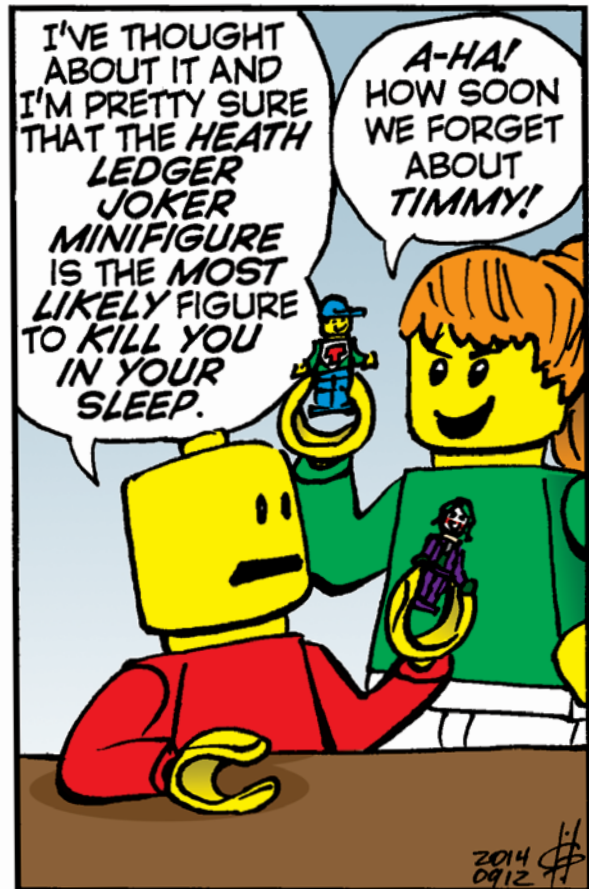
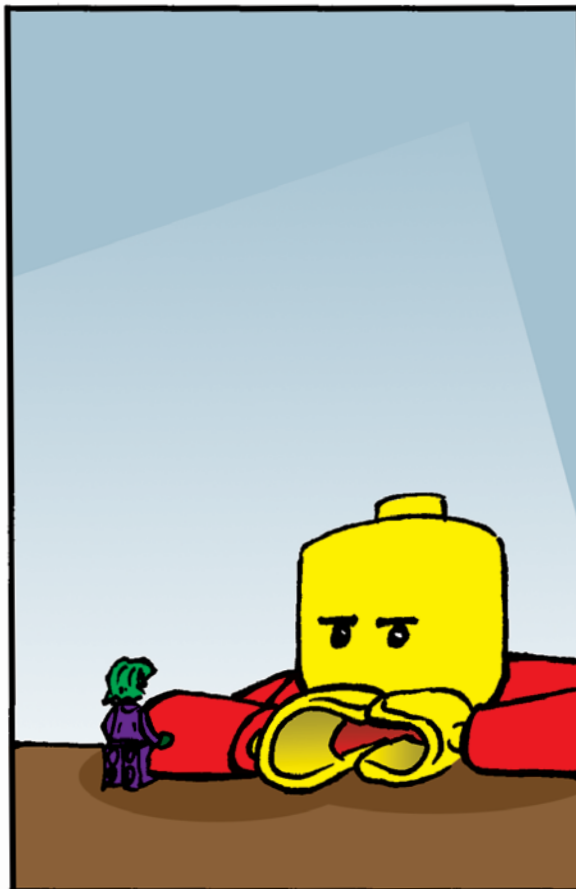
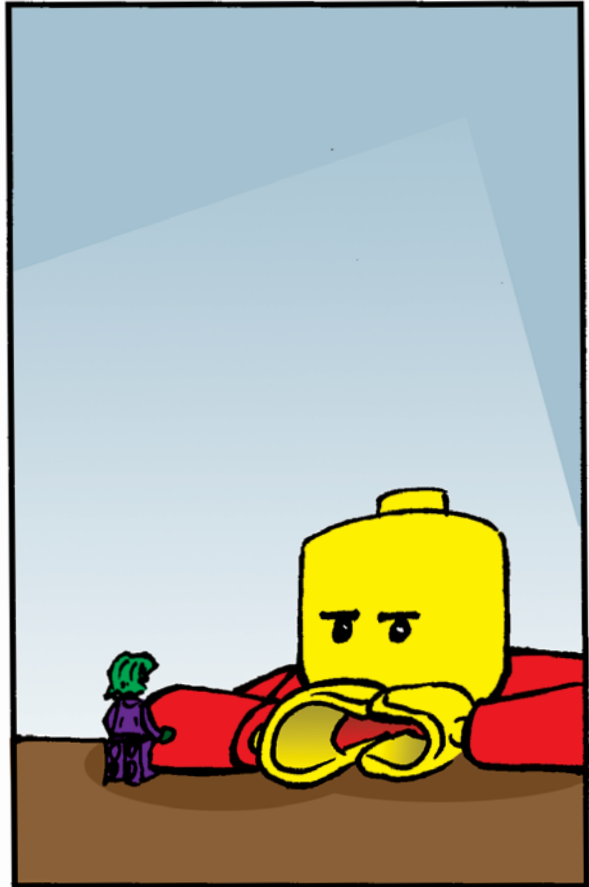
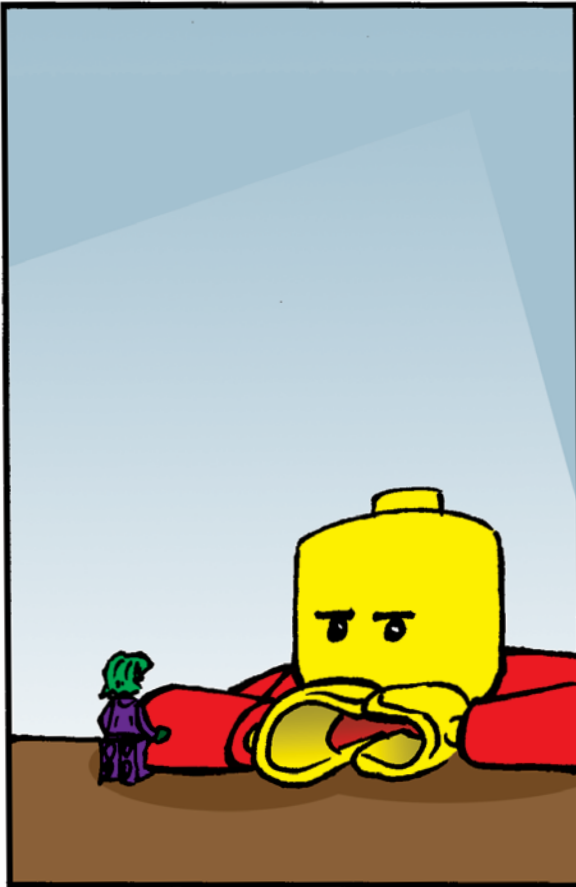
Laura Bailey (Wonder Woman's voice in *LEGO Batman 3*). Wonder Woman TM & © DC Comics.



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Kaminoan's Fine Clonier. For all your minifig decal customization needs.

The advertisement features five LEGO minifigures with custom decals, set against a blue, futuristic background. From left to right: a minifigure with a red helmet and white beard; a minifigure with a purple top and black pants; a minifigure with a tan robe and a glowing pink lightsaber; a minifigure with a red helmet and a red and white suit; and a minifigure with a grey head and a grey dress.



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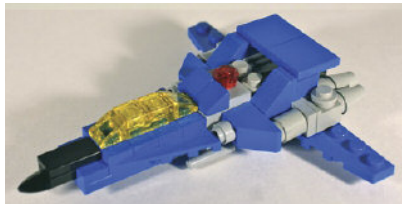
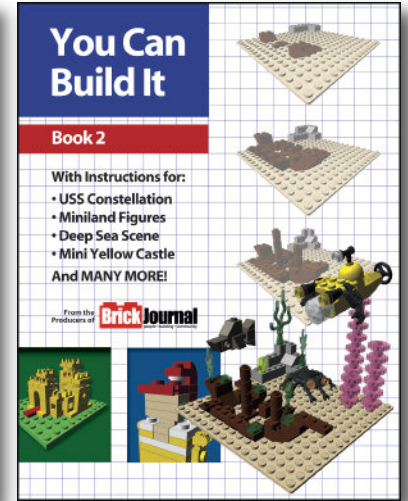
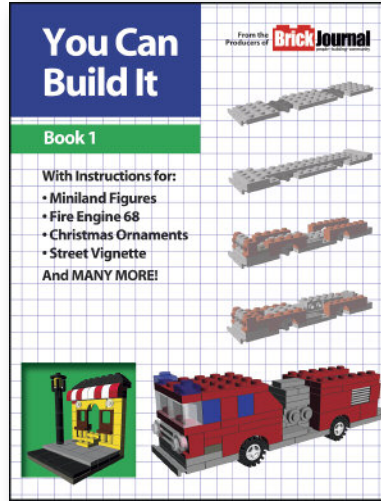
LEGO fans: You Can Build It!

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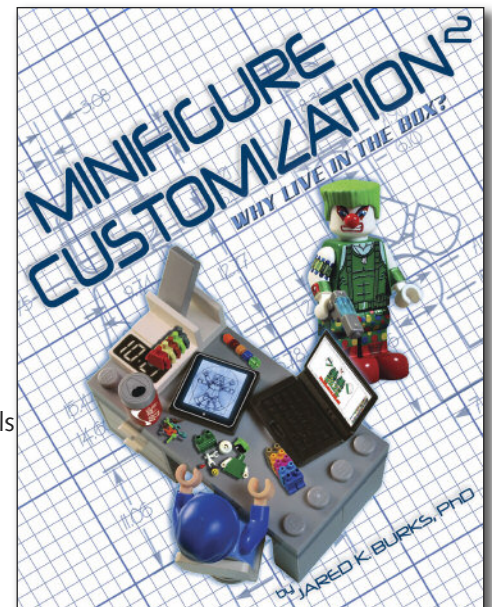


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