

Mayhem in Monsterland is going to be huge. How do we know? Because it's being written by John and Steve Rowlands, the team behind the awesome Creatures 1 and 2. In a CF exclusive series over the coming months, the lads are going to reveal, step-by-step, exactly how the game is taking shape, from the initial idea to the final product...

Let's make a MONSTER



Kelapiti Kido - an early idea for the new game that was ultimately shelved.

Ever wanted to know how games are created? Then you're in the right place. If game-making games is what we do for a living, let's get the introductions out of the way. We're Steve and John Rowlands otherwise known as Apple Computer Productions. You might possibly have heard of a couple of the games we've written: Cyberdyne Maxis or Creatures 1 and 2, perhaps?

We also wrote the Coder Guide for CP's year or so back. That was a day-to-day diary which followed the progress of Creatures 2 (the hero was called Clyde, you see). The time things are going to be different. Not only will we tell you what we do as we work on our latest epic, we'll also tell you why we do it. This introduction has been scientifically formulated to inform, inspire and educate, without bleeding colours (even at 40 degrees).

AMBIENT AUGUST: DESIGNING THE GAME

From the start we wanted to make the game console-esque, aiming for high playability as well as amazing aesthetics. It's going to be platform-orientated, like the majority of console games, but with speeds not yet witnessed for platform games on the C64 (see page 46). We've learnt from Creatures 1 & 2 that out games can be successful, so naturally we decided to make this game suit as well.

From the beginning we wanted to incorporate elements from the best console platform games, as the C64 has no games of this type (no good ones, anyway). But before we got

started away with the design we had to take into account the limitations of the C64.

The first thing we decided was how the screen should be updated. The easiest option is to have a flip-screen format (as with Cyberdyne Warrior), but this limits the gameplay considerably (as with Cyberdyne Warrior). The most obvious decision is to scroll the screen. A conventional scroller, which

most games use, has a few limitations: the amount of colour that can be displayed, the size of the scrollable area and the speed at which that area scrolls. We opted for the Creatures scroller which would need to be adapted considerably to suit the game design, requiring a bi-directional scrolling playing area with variable speeds! (That means it'll scroll up and down as well as side-to-side).

Once the basic design was finalised we had to consider the look of the game. Graphics are not only there to look good, they also provide atmosphere. The graphics in Mayhem are more important than any of our previous games, as they are essential for establishing certain moods throughout the game. We wanted to make the graphics as bright and colourful as possible but we also wanted to come up with a different graphic style to anything we'd done before. So after a few (very) late nights we had a dozen sketches

on which Steve could base his level graphics. Now we had a rough idea of what the graphic style was, we set about designing the player...

CHARACTER BUILDING

The next step is designing the player's character. We started designing the main player by sketching out ideas and mulling around with the sprite editor for a few days. We had to

decide on the sprite specification, whether it would be a single, multi-colour sprite (like Clyde in Creatures), a multi-colour sprite with a three overlay (like the player in Cyberdyne), or a single player with several sprites tacked together. The problem with having a large player is that it would: a) make the playing area feel smaller; b) limit the amount of on-screen sprites you could display; c) use more graphic memory; d) make the player larger than the enemies (when it should be the other way around).

Detail is probably the most important factor for a character in this sort of game, and using a multi-colour sprite with three overlay would give us the detail we required and enough free sprites for bad guys. So once we knew how the player was structured, it was off to the drawing board to try and come up with a decent character. As the game is set in the Mesozoic era (that's where dinosaurs lived to you and me) he had to be a dinosaur. He is,

in fact, a baby dinosaur named Mayhem... hence Mayhem in Monsterland.

It'll have speeds not yet witnessed for a platform game on the C64.

During the game he will be able to charge at other monsters to kill them, and there'll be some sort of weapon. We don't really give him a 'Master Blaster Phaser Laser' (à la Robo Elite), as it has to relate to the game. Therefore we gave him a horn with which to impale his adversaries, with the ability to crush monsters to death at slower speeds. As with most of Steve's graphics, he was designed on paper and then recreated

John (left) handles the programming while Steve (right) is the sound and vision man.

on the C64. We now had a character which was cute yet intelligent, fast yet precise, powerful yet nervous, sexy yet... er... any-way, he looked good!



Let's make a



MONSTER

The
Apex
Boyz,

Steve and John Rowland, have decided on the basic plot idea, main characters and game-play-style they want for their next blockbuster, *Mayhem in Monsterland*. Now in the second month of the game's development, they begin the hard work - programming.



Now we have the initial design of the game completed it's time to start programming. The first routines we tackle in our games are the screen-handling routines, which include video blank, scrolling and decompression routines. We can't, for example, start with the play-alongness collection because there aren't any live-screen enemies yet, and we can't create the enemies until we get the scrolling worked out (the enemies are directly linked to the scrolling level, you see). The player can't ever run around, as the screen's blank. In fact, nearly all of the in-game routines are based on the scrolling level. What we do is create a priority list, programming the routines at the top of the list first, and working our way down.

With the (rather spiffy) player sprites we designed last month and with the scroll routines about to be written we produce temporary test graphics. These will look relatively basic in design, but are used purely to test every condition in the scrolling routines, for example, checking that the colour scrolls correctly on every character. Once these are completed the level

graphics need to be transferred from the personal sketches that were drawn last month on to the C64. Mayhem's task will be to spread joy and happiness throughout *Monsterland* (*Ugh!* Sounds a bit gutsy to me - Roger), literally changing the appearance of the levels, from red and dark-red to bright and happy. This means that we're going to have to convert two sets of

The boys with the game. Steve (on the left) and John (on the right).



Here's the glimpse of *Monsterland* - it's basic, it's influenced by the vibrant colour of art



graphics for each level. This means there is twice the amount of work to be done but, what the hell, it'll be worth it (see page 5).

SIXTY SEPTEMBER

WEEK ONE

JOHN At last, I'm programming a game which doesn't include a single Pumpy-Wumpy. For the last two-and-a-half years I've been making Puzzles

with, run, jump, bounce fly and arch, but to mention the dozens of gratuitously violent ways. So it comes as a great relief to be developing a game without Ughs and Gums. We're going to use a simple scrolling technique to the one used in *Creatures* (but don't seem to get away from it) so most of my week was spent sifting through the *Creatures* source code, extracting the routines I needed for the *Mayhem* people. This will enable me to scroll the entire screen with colour on every character and at almost any speed (unlike other games that scroll two-thirds of the screen, with few colours and at relatively slow speeds) - so there!

STEVE To echo what John has been saying - I didn't have Pumpy! I'd have to do some basic test graphics instead (but then, John says all my graphics are basic). These consist of some reversed characters in various colours (to test the colour scrolls), some two-background colours (to test out any palette that may be needed) and the odd (very odd) background platform, to test out player/background detection - when it's done.

Now with that bit out of the way, I grab my 2B and some more sketches of level ideas and get on with choosing a good selection of platforms and backgrounds. There will be ten character sets for the part of the game - Red and Happy. I've made up my mind to design the Happy graphics first and then have them down to Red. It should be easier to create new levels which are bright and colourful, than make them down (than the other way round).

WEEK 2

JOHN All *Mayhem in Monsterland* consists of at the moment is a few screen set-up routines and the scrolls. I've finally got the scrolls to scroll now, even if it is just with the old *Creatures* graphics. It still only goes one way (from left to right), so I've got to spend days (make that weeks) upgrading it to the specifications that we require.

Initially this means making the scrolls bi-directional (so that it goes from right to left as well), but I also want to make it a hell of a lot faster while simultaneously cutting down the processing time it takes. (Sounds impossible? Well, maybe it is, but I'm going to give it a go anyway!)

STEVE Unlike the *Creatures* 1 & 2 graphics, *Mayhem in Monsterland* will be more stylised with brighter and clearer colours. We thought that an abstract feel to the backgrounds would make this game stand out

from other Commodore titles, setting new standards (how often, probably).

One of the last things about *Creatures* was that when you were walking along the scrolling level and came to what looked like a slope you had to stop and jump up it. With *Creatures 2* John actually put in code to make you walk up slopes, but this was only used on one torture screen which happened to be the last one in the game. Mayhem is going to feature hundreds of different slopes that Mayhem can run up and down at great speed (or so John tells me). With this in mind I've started drawing some slopes which John can use to test his slope code when he gets around to writing it.

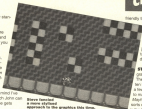
JOHN It's nearing the end of the week, now, and I've got a long way to go before this damned compiler is complete. It's proving to be a tad harder than I thought. On well, it's Friday, so I'll have to finish my current in copious amounts of extra strength side in a night club tonight. (I'm starting to wish I had something to go home every Friday.)

WEEK THREE

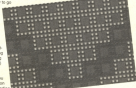
JOHN Well what do you know? I'm still working on the scrolling. I love spending weeks on the same piece of code about as much as I love being stuck in a lift with nothing but a rabid cannibal for company. But at least it's getting there. Honestly it is. It's scrolling left and right under joystick control with some spiffy music which takes the initial speed of 1 pixel per 50th and accelerates it up to an amazing 8 pixels per 50th of a second (which is only eight times faster than *Creatures 1* & 2, grr).

There are, however, a few bugs which need fixing, with one of the nastier ones only occurring every couple of days. I hate it when these pop up because you can't always tell if you've fixed them or you have no idea when they will happen next. But anyway, at least most of the acidity code is done now, giving us a rough idea of how the game is going to feel.

STEVE These graphics are looking better every day. A bit of the stuff added in the last week has been designed around geometric shapes. For example, some of the platforms are based on triangles and pyramids. Some bushes and clouds are based on large circles. These basic shapes are quite effective, and relatively cheap to draw. This level, so far, also has a fair amount of chequered backgrounds. I still need to add some more



Steve showed a more stylised approach to the graphics this time, but he wasn't convinced that Steve early efforts conveyed the quite right feel.



about to these graphics, I'll have to think of something to make it more cheerful, less scary faces everywhere.

It's a shame it's Friday afternoon already, as this means that tonight we will engage in our weekly ritual of guzzling gallons of alcoholic beverages. (I so look forward to the weekend.)

WEEK FOUR

JOHN This week is player interface week. Yep, I've been teaching Mayhem to run, jump and fall around the landscape. I've also written the 'charge-mode' routines. Mayhem

normally walk around at a maximum of 2 pixels per 50th of a second, but pressing fire activates his charge-mode, causing him to charge at the mega-speed of 8 pixels per 50th of a second. As he charges he turns forward (with some radical animations which I'd like to see because of his immense speed) and stops him from our door. This will be used to impale his adversaries, but only when he's charging. Normally he must jump on the bad guys to kill them. (Mmm, when have I seen that before?)

With Mayhem jumping around now we're getting a pretty good idea of how slow

handily the game will feel. It shouldn't feel sluggish or unresponsive. Mayhem should do what you want him to do, when you want him to do it. Which luckily, he does. We'll tell him the User or Player interface. I just need to make the minimum distance he walks when he sways directions smaller, he hrrm...

STEVE I'm taking a break from the level graphics to do some Mayhem music. There were lots of pieces of music written for *Creatures 2* that were never used, a few of which could be adjusted slightly to make them good enough to use in Mayhem. Others will be started from all sorts of inspiration. Be it a club, singing in the bath, or this... whatever. I have started a bit that was loosely based on the music on the *Creatures 2* demon screen message print, and it's pretty good, too.

I spent the second half of the week designing a new game font. It's all in upper case, though the idea of having upper and lower case in the same font was in contention. We decided against that, though, because all the letters and numbers will be designed using four characters (arranged in a square), and with around 70 of them to draw (A to Z upper case, a to z lower case, 0-9 and some punctuation, there wouldn't enough characters in the Commodore set to be able to come up with the amount of combinations we would need. The font wasn't finished by the end of the week, but it should be ready so that you can have a sneak preview next month. (Can you break the suspense?)



IAN CYCLOPEDIA'S GUIDE TO SPEED AND HOW TO HANDLE IT

The Bowland 'Boyz' (although it's against my nature to use such abuses of language, in this case I will have to) their (geographical) predecessors have been using a lot of expressions like '3 pixels per 50th' this month. What do they mean? Well your TV updates the screen 50 times a second and the Boyz can tell you 504 to do the same thing. This means that if a sprite moves one pixel every 50th, in one second it would move 50 pixels. If a sprite moves 2 pixels per 50th then in a second it will move 100 pixels, and so will appear to be travelling faster.

When the 'Boyz' say that they're travelling the entire screen at 1 pixel per 50th, this means that all the problems will move a distance of 50 pixels in a second (as with *Creatures*). But when they mention speeds of 8 pixels per 50th the platforms will be moving at a whopping 400 pixels per second. In other words, Mayhem is going to be an out-stunningly fast game. How he's going to need very fast reflexes to survive.

THE SAGA CONTINUES

Check out issue 50 for the next excellent installment. Yes, Steve, we'll be back in 50th days with yet more inventive details of Montebard production. (Bleeding from the creature of the new levels through to getting Mayhem to run up slopes and sliding up in our usual Friday night state of excitation.)

jump on the bad guys to kill them. (Mmm, when have I seen that before?) With Mayhem jumping around now we're getting a pretty good idea of how slow

Let's make a MONSTER

Month three in the making of Mayhem in Monsterland, and the Apex Boyz, Steve and John (the brains behind Creatures 1 & 2), run into their first real problems. Redesigns ahoy...

Happy New Year and all that makekey. Seems odd saying that as we're still in October. Never mind, you'll read about our (bound to be massive) New Year's Bash in our old March (hey, hey).

So what have we done this month? Well, we've had to decide what sort of status panel we want to use in the game — you know, the bit with all the info that you need to know how well (or badly) you're doing. With the playing area taking up the entire screen and scrolling left and right we can't really make the status out of the characters — not only would they take up valuable screen space, but they would also scroll along with the screen. So the status information is going to be built up of sprites (as with both *Creatures* and *Demigra*).

The first thing to consider is where to put it on the screen. At the top or the bottom? We have to bear in mind that the sprites that will be used for the status will also be used for the bad guys. In other words they can't share the same part of the screen. So if we position the status at the top, no badies can walk or fly around up there. If we position it at the bottom no badies can go there either.

In the end we decided to put it at the bottom. Badies walk on top of platforms, so if we make all the platforms at the bottom of the screen, thick enough, we can insert a status strip in this small space (as with *Creatures*).

OMINOUS OCTOBER

WEEK ONE

JOHN I've been coding some of the status-area display routines this week. As the CPU can only display a maximum of eight sprites in any one horizontal strip of the screen, we're slightly limited with the amount of information

we can show to the player. The games playing area is the entire height of the screen, and we want Mayhem to be able to move around in the entire height of the screen, as well — which includes the part behind the status area. As Mayhem is two sprites the amount of status

sprites we can use is now limited to six. So we have to decide what information is essential to the game. Score and Lives are the obvious ones, but we also want to put in a Star count. Stars are awarded throughout *Monsterland*. Since Mayhem has transformed it from hell to happy, and Mayhem can pick these up for extra points and lives.

Now we know what is to be included in the status, we have to figure out a way of displaying it which will be easy to read. (Don't you just hate playing games with overly complicated status panels? Especially if you lose a life because you DON'T see the bullet that killed you... as you were too busy searching the status area for some info. We'll put Score on the left, Lives on the right and Stars in the middle. Simple and effective.

STEVE Finally I've finished the game and I started to think. There is,

however, a slight problem. When we put the text in the game and ran it a few times on screen, we didn't like it. So on to the next character set, which will have a reflection up and down. The letters will be made from the same two to

ten characters, but with an extra two underneath for the apices. This will use a lot more character set memory, but with luck will be worth it.

The trouble of designing fonts has more of a funny bit so it's time to take a break (sounds like a good slogan for a confectionary advert).

I'm going to design some level maps using those graphics based on geometric shapes I described last month. This came across a problem, though. Simply put — the running out of graphics space in the level design. The only way to get over

this is to look. John's left so he'll change his map editor to cope with the amount of graphics. We expected that to happen and it will not be the first time I'll have to wait for a new editor before I can carry on.

WEEK 2

JOHN Andy Roberts came down this week and saw the game for the first time. His first reaction was that it was a little too similar to some car-sim platform games. The three of us sat around and discussed (argued) whether it was or not, ending up with us going out and buying a Super NES to compare games. The decision is that Mayhem is NOT too similar, and, in fact, has far more originality.

Anyway, away from the research and back to programming. I've decided (well, Andy talked me into it) that it's time to create a temporary Get Flecky screen. This would give me a chance to test our apple-font idea and let me do some presentation routines (which I haven't done for months). By the end of the week I have a screen of text, complete with reflections ripping away under each letter. It looks okay, but not quite how I imagined. And that I'm saying it's rubbish (well, not much), it's just not as table sell as I thought it would be. Boo hoo.

STEVE I now have a suitable map to give John to put in his version of the game. This is the first real look and feel we have had of things to come in *Monsterland*. The map has a few bits of background and some pretty slopes for John



From left to right the various fonts for Mayhem in the order they were designed.

A B C D E F G H I J K L M N O P

A B C D E F G H I

To sit in beds when the code is written (which he should start now) relax), but I think the graphics could be happier. I've already started sketching some silly faces. It took a long time to get the ripple font finished and but we don't think we can really keep it in the game. So guess what? I'll have to design another one. This time, though, I've had a good think and will do the font in seven cases letters to hopefully give it a more rule look. In fact, this new one is a joy to sail later and all is complete. The new font is voted by a majority decision the one that'll stay in the game (that is, until we change our minds).

WEEK 3

JOHN The next major parts of the game to be coded are all the slope routines which will enable Mayhem to run up and down the slopes of Wonderland. One of the differences between *Crashers 2* and Mayhem in Wonderland is that Clyde moved over a stationary screen at a constant speed whereas Mayhem moves over a sideways-scrolling screen at eight different speeds. So the slope routines in Mayhem are going to be a lot more complex. I've decided that I'll complete all the routines for platforms, which slope from the bottom left to the top right, then duplicate or modify them for slopes in the opposite direction.

The first problem I've encountered is to do with Steve's design of the graphics - they're useless. Seriously, though, they look fine, but can't be used in their present form. For me it physically hurts Mayhem up a slope I need to check for special 'control characters'. Each character would have a specific function, but most also look like it's part of the slope. Steve didn't realise this and has gone ahead and designed the slopes so that they look the same, but are built up of the control characters that I'm programming Mayhem to look for. Sorry Steve (shuckle).

STEVE This is not going to be fun. As doing all these slope characters is going to take ages. Thanks. John, for telling me this when I had finished the slopes. This means that I can't just design a nice-looking slope as it normally would



- I will have to work to edit parameters which control where I can place characters. It's a bit of a bummer but it has to be done. So six hours later and all is well with the slope characters (finally).

I've had a good idea for a few lines. With the lack of 'leadacolor' in the last one, I decided to brighten things up a smidgeon. This time has started off with some well shaded tables which range from grey to purple to pink and to yellow with jolly spiky effects (you may get to see them next month). Andy Roberts is still about now to be blessed, favoured, fortunate, etc) and he has been offering his invaluable (I) assistance with pointers on how to make the graphics look better.

WEEK 4

JOHN Starting the week with a bangover from hell after some serious partying at the weekend it's time to wave a hand toward to Andy and get back to writing Mayhem. The slope routines are finished (almost) Mayhem

can walk up and down any slope of any length at any speed. As the game only scrolls left and right (and not up and down) this wasn't too difficult to achieve. One thing that does look odd is when Mayhem changes at full speed across a series of little slopes, hugging them so to moves up and down.

STEVE That was one party to remember (apart from the bits that seem to have gone blank). Back to work now with more bits on the newly named Pipeland. I'm adding even more colour to it in the form of rainbow platforms which are not only horizontal but vertical as well. I've also put fairly nice diamond Choppers in the background which make it look a lot more comic-book. They happen to be in three assorted 16-colour arranged a platform of multi-coloured graphics on a full screen scroll. I love these near brilliant boundaries (compared to other C64 games) that John can navigate me.



NEXT MONTH

Join us next month when we find Steve slipping mainly towards Pipeland, meeting a few more new monsters along the way, while John is left cautiously playing with Mayhem (so-so).

THE DEF GUIDE TO C64 GRAPHICS

Have any of you ever played a game and thought 'I could do better graphics than that'? And then sat down and found it harder than you thought? Well, here we have 'see Ages' is here. We've compiled a few tips on how to create different styles of shading on your trusty C64. So boost up your graphic editors and read on...



1 When colouring an object using two different colours (one dark and one light), don't just change from one to the other. You can form a border, and more realistic join between the two by blending them. Do this by creating a chequerboard pattern, and insert it between the two areas of solid colour.



2 If you've designed an object on a contrasting background, for example, a black ball on a yellow square, the pixels that form the edge of the object become easier to see. This makes it look chunky in definition. To help get over this, use a 'middle' colour, which is brighter than your dark colour but darker than your light one. Use it as an outline, effectively blending the edge from the dark to light colours you're using.



3 Have you ever found that 16 colours just aren't enough? Have you ever wanted more? Have you ever found that your character looks your chins plates? Well believe it or not, it's possible to create new ones (colours, that is, not chins plates). If you have two colours of equal brightness, you can mix them to create a third colour of equal brightness. To do this, use alternate horizontal lines of the two colours. This can be very effective and is used in Mayhem in Wonderland together with the other techniques above.



Let's make a

MONSTER

Mayhem gets a few new moves,
Monsterland grows by another level and
the Apex Boyz lig out at the Future

Entertainment
Show. John and
Steve Rowlands
relive last
November in
part four of the

continuing genesis of the game that's gonna
be the game of '93, Mayhem in Monsterland.

The major alteration to the game this month is Mayhem's control method (the user interface), which has been modified to give him a greater range of movements. Although he can already walk, run and jump, we felt that such a small repertoire of actions would limit the playability. Hence the said game would be less playable, you know making it less fun. QED. Yes, Verbi, two and, indeed, Curriculum View. (Translations on a postcard please.)

These extra moves will not only make Mayhem more flexible but will also allow us to design extra features for each level. This gives Mayhem a greater interaction with the background graphics (ie, the graphics aren't just aesthetic - they're functional).

NIFTY NOVEMBER

WEEK 1

Work had to cease on the game this week to make way for (you guessed) the Future Entertainment Show. This consisted of walking around the stands for 10 to 20 minutes, then frequenting the bar and diligences (we even got a free gig). We also spent many an hour on the better station which adorned the Ocean stand. Think booming rock cuts to Andy 'Shore' Roberts, Andy 'Live Long and Prosper' Smith, Rob 'Not Used Christmas Eve' Ellis, François 'Marie-Claire King' Moré, Andrew 'Quincy' Davis, Mike 'VP', Robinson, Dave 'I Like Not Drunk' Clark, Jonathan 'DJ Smyth (that's enough self-indulgence - Ed and anybody else we bumped into.

WEEK 2

JOHN Before I get carried away and start incorporating new moves for Mayhem, I'm going to tweak the ones he can do already. For those of you who have played Creatures, you may have noticed that if Clyde jumps all the way to the top of the screen he bounces back down again. (If you don't notice you know me.) The problem with this is that it's often difficult to jump over gaps because you rebound off the top of the screen before you've jumped far enough, whereas with

enough height you would normally be able to make make it (assuming your game skills are good enough, that is).

In Creatures 2 Clyde could jump off the top of the screen (and into the top border) so this problem didn't occur. Now I've modified the jump routine again so that when Mayhem reaches the top of the screen he stays airborne (lags upwards) for the duration of the jump. Now he can traverse large gaps as if there were no over-head obstacles.

While I'm adjusting the jump routine I've decided to put in a little bounce routine that forces the player to push up every time he wants to jump. In other words, you can't hold the joystick in the up position and jump repeatedly. While I'm on a roll, I also further modified the jump routine to check how long the joystick is pushed up - the longer you push up the higher he jumps.

Look, these modifications might seem trivial to you but they radically enhance the gameplay. Do you think I'd go to all this trouble just for the fun of it?

STEVE The level I've called Popland is coming along rather well. Just to give you some idea of how I go about designing a level here are the basics:

design stages:
First I mood some sort of theme for the level, which can be something as simple as a tree or a platform. Once I've worked out this first element, then the multi-colours I've chosen for that will remain the same for everything else in that level. (Hence in a minute we'll see the multi-colours everywhere - Ed).
Oh, right. Let me fill you in. Each character (eight-point by eight-point black) can be made one of three colour (four if you include

the background colour, but I won't have 'oot it just confuses matters). Two of these colours are multi-colours - which I choose when I start to design a level and have remain the same throughout - while the other is the character colour, which can only be changed to one of the first eight colours of the CGA's palette. Although this is rather limiting at first, if you persevere you can get some rather cunning results (well we think/Robograde).

Creatures and Creatures 2 both pretty darned good. So, for example, Popland has dark grey and pink multi-colours with a cyan background. For the pipes the characters use ranging from left to right the following

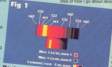
colours: dark grey, purple, pink, yellow, pink, purple, dark grey and black (take a look at fig 1), the character colours in this case being purple, yellow and black.

In the background of all this are some finely-designed mountains which have three layers. In order to get three different colours for these mountains I mixed green and cyan to get the colour for the distant ones, solid green for the intermediate hills and green and pink (which makes a sort of pale beige) for the ones furthest away.

WEEK 3

JOHN I'm still trying to enhance Mayhem's movement. Instead of him simply sliding to a halt after he's been charging around the landscape, he now slides leaving a trail of smoke behind him. Obviously the faster he's running, the longer the slide. I was testing this routine up and down the slopes and I reckon it looks pretty cool when you get a trail of smoke going over them.

The end of this week was spent creating a small collection of star routines. This started with star printing make them appear on the screen (which does help matters a bit), but then I added some rotation code to make them spin. The idea is that they'll spin at different speeds, remaining at the fastest speed for the shortest amount of time, and the slowest (which I actually be not spinning at all - you can't get much slower than that) for the



The pipes in Popland consist of two different sorts of colours - multi-colours and character colours.



Mayhem's almost complete now, but Steve just can't stop making little adjustments

most time. This is because the points you'll gain for collecting a star will depend on the speed at which it's spinning. The faster it spins the more points, you'll get.

STEVE The first part of this week involved the stars John's been talking about. I designed the first frame using characters (2x2 squares) but for the rotation animations I moved to sprites because to design a 16x16 pixel block of stars in characters is just too much hassle (you have to work on it a quarter of a time). Also, sprites can be animated more easily, which is handy as this star will have a nice smiley face rotating through 20 frames.

Now it's back to making Interland – I've got a new level in mind. I started with the idea of creating a platform with a chequerboard diamond pattern on it. This level began with the multi-colours set to brown and pink with a cyan background. The pattern used yellow and brown diamonds with pink to anti-alias (smooth) the edges (so that they don't look so sharp) with black across the bottom so that I can get the dark colours I need.

The next stage is to design a load of graphics on paper that could be used, and would be suited to, the platform. I've just designed. I've come up with some weed-looking plants and platforms and have already put a few bits on to the lot, some of which look just like giant cherries on small stalks – well, I did say they were weird! This level has been given a working title of Cherryland (and why not?).

WEEK 4

JOHN At this week was spent finishing the star routines. First I did the collision between Mayhem and on-screen stars, then I eventually got the stars to rub off (when Mayhem collects them they vanish). This took a couple of days as not only did I have to rub the stars off the visible screen, but the hidden screen (used by the sampler) as well. Once I had these routines working I had to rub the stars off the map. If I hadn't, you could repeatedly return to the same point and pick up the same star ad infinitum.

As I can now physically pick a star up I thought I might as well increase the player's star count (that appears in the status area) and add the points to the score. As I've already mentioned the stars have different score values. There are five different rotation speeds, with the least number of points awarded for the slowest speed. At the moment the scores you get are 0, 5, 10, 20 and 50.

Finally this week I put in the code that will

let us modify the colour splits that change the 8-bit character multi-colours. These splits are spread over the screen and basically give Steve more colours for his graphics (see Gary). The code I've just added lets me change the colours that are displayed on the screen as Mayhem runs through Interland. This will enable us to, for example, have dark gloomy colours for caves and, as Mayhem moves out of them, brighter colours for daylight. Obviously, any such changes will be done invisibly as having half the on-screen colours changing in front of your eyes isn't the most professional way of doing things (check out Golden Age for example).

STEVE Now I have a few levels started I can work on any one I want whenever I like. This makes designing a lot more enjoyable because if something on one level becomes about as interesting as being stuck in a lift with



The mountains use different colours depending on how far away they're supposed to be.

Ken Barlow I can load up another level and start something new. Using this philosophy I have now left Cherryland and I'm back to playing about with Pipeland.

While playtesting the game I came up with the idea of letting Mayhem jump up through platforms and land on them when he falls back down. Also, to make him even more flexible, John could modify Mayhem's control system so that at the top of the joystick you could drag through these platforms, improving the playability even more.

This type of platform would be included in each level along with the standard platforms that you can't go through. I love coming up with ideas that give John more work to do!



What was and how can Steve's (John's department) while what you play and how you play it is John's priority, but that there isn't any, well, creative resources.

SPLITTING UP IS HARD TO DO (DOO BEE DOO)

You may recall Steve talking about using the same character multi-colours over the entire screen. This doesn't have to be the case, however. Every game we've written has incorporated what we call 'Colour Splits'. This entails making use of something known as an IFC raster interrupt to change the on-screen multi-colours.

Because the screen is made up of hundreds of horizontal lines (which the raster scans from top to bottom 50 times a second), splits can therefore only be horizontal. If you set up a series of the splits down the screen, you'll see the several different bands across it (see below). However, what we can't split is each character's colour. To illustrate this, look again at the pictures below and you'll notice (hopefully) that the yellow, purple and black remain the same down the screen.



The IFC raster allows Steve to introduce a 64-bit colour to a level by changing the multi-colours in a level but the effect only works in horizontal strips. (Character colours aren't affected, that's why the puffers, puffers and bricks in the right-hand gate remain the same all the way down, while grass and plants can be changed. (Steve would like to point out that for known the colour colours is infinite, but it is for demonstration purposes.)

Steve is at the stage where he needs to produce some test levels, so the time has come to create a map editor. It will enable us to produce the level maps far more quickly and easily than normal with the editor being written around the actual game routines – in effect Steve can design a level then quickly switch to the game to test out his latest creations. It also includes a graphics editor (of sorts) to allow any part of the level's appearance to be tweaked as necessary.

DEXTRIOUS DECEMBER

WEEK ONE

JOHN I've just finished preparing a version of the game to be incorporated into the map editor. I've typed out anything Steve needs to test his levels, leaving the essential routines which can be incorporated into the editor. These are basically the scrolling and player movement routines and will allow Steve to test that his level designs are workable. Now I've got to implement this stuff of the game into the pre-written editor; this shouldn't be too much hassle as I've got the map editor from Creatures that I can use. In other words, I'll be keeping the map editor but substituting all the Creatures scroll code for the Mayhem scroll code.

Working late one night this week, I decided that the levels could do with some parallel scrolling so I spent an hour adding a piece of code that sets the direction of a few characters in the opposite direction of the scroll (which gives the illusion of parallel). Now we can put a pattern in the background that moves at half the speed of the foreground, giving a greater feel of depth.

STEVE As John will be starting work on the Get Ready screen soon, he'll need all the music.

Steve's having fun with the Get Ready screen and tweaking the map editor.

It's a testing time in the development of Mayhem in Monsterland as the graphics are placed together into level maps.

John and Steve Rowlands, AKA Apex, AKA The Boyz, tell it like it is...

Let's make a MONSTER



and graphics to it. So now it's time to move on down to monsterland where I can get on with a bit of Get Ready Music, which should be so happy and cute it'll make you want to chuck.

WEEK TWO

JOHN I've spent a day or two tweaking the map editor taking into account hints from Steve on how it can be improved. This usually means adding little touches to make certain tasks easier for him (the busy great musician).

Andy Roberts has come down to stay for a week or three again, and has talked me into

graphics which scrolls along in six levels of parallel. We put it in there to indicate what the level status is – if the graphics are dark and gloomy then the level is in Sad mode, but if they're bright and colourful then the level has been changed to Happy mode.

STEVE I've not had much success down in groove-town. John will have to put up with a temporary bit of music until I sort out some decent sounds. Now I've finished that on the head I'll start the graphics for the Sad and Happy versions of the Get Ready screen.

They'll use characters and sprites to build up the mini-parallax version of the scene. Thankfully these graphics don't take long to design because I just copy what I've drawn from the level file, a work-sty-tyo! Never!

This morning I had an idea for an explosion to put in the game, so I stopped what I was doing and loaded up the sprite editor. It starts off as a small star and gets larger until it fills the whole sprite – when it does it shatters into smaller stars that fall to the ground – and jolly nice it looks too.

WEEK THREE

JOHN The first day or two of this week I spent tweaking up the Get Ready screen. I've typed up all the colour cycling tables, which are used to colour the on-screen text. I've also written the small collection of routines that set up the current level with the appropriate attributes so that when the player starts you, that is, presses the Fire button to enter the level, the correct bank of graphics, colour table and so on are used.

I've made it possible to jump back to the Get Ready screen from the game, also search



The map for Pipehead has been worked out! And it's so big we're had to split it into bits to get it all in. This bit here is the last section.

coding the first bit of presentation for the game – the Get Ready screen. I started coding it with the stage names and numbers at the top of the screen, the level status below and loads of happy faces flying around behind the status message. Our opinion? Pretty lame, so we ripped out the whole she-bang and started again.

After a few days coding the mark II version of the Get Ready screen is looking as nice as a very nice thing indeed. It still has the stage number and name at the top but also has a "Mayhem level" message beneath. At the bottom of the screen is the level status, and above this a rather spiffy map window. This displays a not-down version of the current level complete with scaled-down



The first section of Pipehead complete with the bonus stars. The levels in Mayhem will even feature a form of parallel scrolling where the background appears to move at a different speed to the foreground to give an extra feeling of depth. It's a trick the Boyz use a lot.

ing whether it should appear in Sad or Happy mode, then enabling me to jump from Sad and Happy versions of my test level whenever I want. At the typing post, convenience is the mother of... er... baby convenience.

The rest of the week was spent transferring our music player into the game and updating the temporary pieces of Get Ready music Steve has written. There will be two for Get Ready, one for Sad and one for Happy. We want the Sad one to be more spooky than sad, to create a frightening, blood-curdling atmosphere as you enter the stage. The Happy one should be a sort of up-tempo and hearty tune getting you in the mood to battle against the denizens of Mountland.

STEVE The Get Ready screens looked okay but I thought that the sad mountains — which scroll along at the back of the platform — could use some shadows, cast by the light of the moon. I've also touched up the rest of the characters and sprites.

It's now time to go back to the drawing board (literally). A mental block over our level designs is soon solved by sketching out loads of ideas, some of which are unworkable, but others have potential. As the latest platformers are based on scores of triangles along the top with lots of rectangular shapes hanging down behind, this looked good on paper.

John and I finally thought of a looked really on screen. I wasn't too sure. (Some of the other ideas on paper still appeal to me with some spotty platforms and spotty backgrounds being the best.) I'll leave these until next week to put into pixels. One John keeps nagging me to touch up the Happy Get Ready graphics.

WEEK FOUR

JOHN Typical. Just typical. Mayhem in Mountland has a Sado Get Ready screen, but the latest Get Ready screen is corrupting the game. Every time I press F10 the game looks up. Damn. Now I've got to sit through hundreds, no

thousands of lines of code to find this thing of 'the bug'.

Don't let May be a considerable amount of time through my code. I've finally found the problem. It's to do with the full-screen scroll that I put in last last week. This is used to bounce the Get Ready section up on to the screen (and, ooh, dead cool). When you press F10, the screen drops back at the bottom, and it sets this bit of code that was running the game. I'm still not sure why, but when I make the Get Ready screen jump straight in the game, it works every time. He, hum, no-one will miss it, I suppose.

As I was already sorting through lots of print-outs I thought it would be a good time to check out my source listing for the scroller (the largest routine in the game). I went through, cutting out things here and there, and ended up saving not just a bit, but a massive amount of processing time. Now I have a scroll routine which takes up about a third of the processing time (power is a previously look as well as a real Get Ready screen and a decent excuse for getting a test tape tonight).

STEVE Now's the time for some big ones, little ones, all sorts of shapes and sizes. I even listed one in a huge list I wrote down on John's note. It's time to start converting my sketches of this level into on-screen graphics. Once the basic design of the platforms was done, I realised that I could easily put a colour split across the middle (see CF-28 for a full explanation of colour splits, but basically they give Steve more colours to play about with — E8). The editor I'm using at the moment won't handle splits, though, so I have to put the platforms into blocks, then load the blocks, the character set and the character colours into our (brand new and rather excellent) custom-made map editor. Next I design a quick map to try out the platforms then type in the colour tables to split the platform colours.

The result is good enough for me to carry on with the level, which is handy as I've just had a jolly sofly idea for a type of Happy tree.

The tree uses our special technique for adding depth to the level; using the C&A to

priority flag we can make Mayhem go behind the trees but still in front of the two layers of mountains. I've done a test version with the colours and priorities but have yet to put the graphics into blocks and load them into the map editor. This means that, for the moment, I can't see how the graphics look when incorporated into a level — Mayhem will have to stay in Pipeland for another couple of weeks.

ARE YOU GETTING READY FOR THIS?

We include Get Ready screens in our games not only to tell the player to Get Ready for another go, but also to tell us a periodised period between lives, which can be handy if you're playing a rather hectic part of the game. The Get Ready screen can also be the perfect place to display in-game info. When we designed Creatures we thought it would be a good idea to show the player where they were going to start on the level. With Mayhem we've decided to show the player the current status of the level (either sad or happy).

Stage 6 : Pipeland
mayhem sad!



status : happy!

If you see this Get Ready screen then you're doing pretty darned well.

Stage 6 : Pipeland
mayhem sad!



status : sad

But if this screen greets you, then things are not going swimmingly.

NEXT MUMF...

Why not join us next month? What? Not? No starters we'll be introducing you to some of Mountland's inhabitants who will be only too happy to decrease your lives. And now that Steve has a few levels under way, you can sit back and watch Pipeland, Chameleon and Spentland begin to take shape. Oh alright then, enough of words... PLEASE READ NEXT MONTH'S DIARY.

The middle bit of Pipeland. This is, of course, the happy version of the level, the way it should look when you're done your job properly. Otherwise things will look a bit sad and overcast.

And lo, on the sixth month did the Rowlands create monsters - loads of 'em, 15 to a screen, in fact. John and Steve, the Apex Boyz, describe how they populated Monsterland, the setting for their forthcoming blockbuster.

Let's make a MONSTER



THE STORY SO FAR...

John and Steve Rowlands, the team that brought you *Crashout* 1 and 2, are in mid-stile of writing their new game, *Mayhem in Monsterland*. These levels are in the design stages - Pipeland, Chatterland and Spookland - and the monstrous and villainous destruction routines are almost hourly story. And just so you know, John does all the routines and stuff, while Steve handles the arty and musical side of things. Both of them like Ice T.

You can't have a platform game without some battles to bump off. Well, okay, you could, but it'd be about as fun as a very old thing making a guest appearance on *Elizavinda*. You need some battles to noddle to add a bit of challenge. So, the time has come to put the monsters into *Monsterland*.

The first thing to decide is what the most multi-number of on-screen monsters at any one time will be. The GBA only allows for up to eight sprites on one horizontal line, and Mayhem takes up three. That leaves us with five sprites per horizontal line for the enemies. We also need to consider how much processing time and memory each monster will take up - the more monsters are put in, the more time and memory they'll use. Taking all of this into account, we reckon 15 on-screen monsters would be sufficient (because the more than enough in *Clash*). Oh, the same as in *Crashout* 1 and 2.

We also have to decide how many different types of monsters to have. In our previous games we've included different casts of battles for each level, which helped create an other-worldly atmosphere. With *Mayhem*, however, we want you to feel that you're in different parts of the same world, so we've

decided to create one cast of monsters for the entire game. But there will be different sets of monsters for the Sad and Happy versions of each level. Yag, it does make more work for us, but it also means a better game for you!

JOLLY JANUARY WEEK ONE

JOHN I spent a day or two teasing Mayhem's control system (again) connecting a few bugs I've noticed recently. One of them - spots in *Crashout* 1 and 2, and enables you to jump fractionally into a platform. I reckon that I've finished deciphering my code now and I can't really improve Mayhem's movement and spring-

boarded and said that a colour split could be inserted across the middle to add more colours. After seeing it in action I don't reckon it looked too hot. I've decided to leave the idea alone, and continue with the happy trees and vegetation for the rest of the level.

Although it's coming along nicely, I'd like to add some really happy stuff like loads of enemy faces just to get the message across that you've done a really good job to convert the level. The problem now is to incorporate big grinning heads into the rest of the level without them looking out of place. In *TMNT* made the faces work great, but not. (After we get some people of *Gar* if you want for reference - *Gar*).

WEEK TWO

JOHN This is it! I've finally started coding the "monster" routines, with the first few days spent creating the split routines to give me 15 monster sprites. I thought that as well as splitting sprites, I might as well split a sprite multiversion. This gives an even greater amount of on-screen colours, which is fast approaching the maximum of 16. (There's a full explanation of colour splits in *CF 55* - Dave).

So, with 15 monster sprites dotted about the screen, the next stage is to get them to scroll with the background. The monster scroll routine not only has to cope with eight different speeds, but has to be bi-directional too (meaning they will have to move left or right as Mayhem moves). This was one of those routines that I thought would take about an hour, but eventually took over a day!

The only problem is that some of the monsters at the bottom of the screen occasionally get while they scroll. This

With 15 monster sprites dotted about the screen the next stage was to get them to scroll.

for routines much more. (Having said that, I'll probably find a huge bug in a couple of weeks.)

The rest of the week was spent adding some sound effects to the game (SFX as we technophiles call them) such as sliding and shape-shifting. They've improved the in-game atmosphere considerably, so while I'm incorporating sound into the game I might as well throw in some in-game music. This is another domain that has to change from Sad to Happy. You can't have a jolly little tune playing in the background of a level that is supposed to be dark and scary.

STEVE Last month I mentioned that I'd started a new level called



Mayhem - he can move, he can groove, he can even noddle with things now.



Meet the Apex Boyz, John (left) and Steve (right), who continue on, and to be combined with the Apex 2 Team who are a modern beat combo.

bug has jumped straight to the top of my 'must fix in a later stage' list, which loosely translates as 'I'm too lazy to fix it now' list.

STORY After a quite easy start, and I saw it, brilliant (they I said it), conversion of the happy toes from paper to pixels, along came the task of designing the surrounding scenery. I had a very rough notion of what to do off over than last month; the first thing to do was redesign the two layers of mountains and merge them with the characters around the tree tops. The foreground mountains are pink, while the background peaks use my method of colour mixing (see our *Dial Guide To Graphics* in issue 28) to make a sort of hazy shade of pinky light blue.

While I was sketching ideas for the Spotty level, I came up with some rather funny points, which unfortunately couldn't be included in Spottyland owing to ever-decreasing graphics memory. Instead, I'm using this plan as a basis for the whole new level.

WEEK THREE

JOHN Now I've got my monsters on-screen, the animation and movement routines have to be added next. I'm using the ones from *Creatures*, modifying them to suit Mayhem. So as I turned the midnight oil, I transferred the routines across, changing a MASSIVE amount of variables as I went. The only problem is that the routines take up spaces of processing time as they perform loads of functions. Mayhem isn't dead!

most of them, so I'll have to nip them out at a later date. Ha-ha.

Going back to my in-game music cycle, I had to modify it slightly to make it situation-sensitive. This will enable the in-game music to change subtly depending on Mayhem's position in each level. For example, if Mayhem's in a gloomy cave the music should be scary and spooky. As soon as Mayhem leaves the caves and enters a daylight area with happy trees, the music will change to a jolly little ditty - suitable for a cute baby character collecting magic stars. To keep the presentation slick, any interactive music changes will avoid any obvious changes in tempo.

BRENE Most of the levels I've designed have had two main sections (and I don't mean the Hallowed Hills). For example, in *Flowland* the majority of the level has a open sky and colourful pipes, but some of the level is set in a 'dark castle' section. For the Spotty level I'm thinking of adding a 'big bush' area that gets darker as you venture deeper into the forest. As for *Cherryland*, I have lots of new ideas to include, so this level may not have a dark section.

I reckon these areas in the middle of each level will add variety and not just in terms of the way they look. They'll require less 'charging up slopes' and more platform dodging as you have to leap around platforms - maybe a type of *Syndicate* with lots of clouds to jump through...? Hmm, now that's a thought!

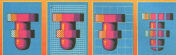
WEEK FOUR

JOHN I took a break from the game for a couple of days this week to write a few utilities for

NEW BOYZ ON THE BLOCK

You might have noticed that we keep referring to the fact that we use 'blocks' to create each level (and if you didn't, then take it from us, we do). These comprise 16 characters arranged in a 4x4 grid. This system lets us build our maps from block numbers instead of character numbers. With each

screen of 40x40 characters a standard map would take up about a 1,600 bytes of memory (almost 1K). However, using blocks we can store a screen in roughly 64 bytes. With the average level being about 25 screens long, it's obvious that the use of blocks can save a considerable amount of memory.



The levels are stored in blocks of 4x4 characters which saves a lot of memory. And that's better for us, better for you and better for the environment (or, probably...)

Steve, These include character checkers and character/block checkers. A character checker lets Steve load in a near-finished character set, then checks for any character that has the same definition as another (repeats basically). If any are found, Steve can tell-out the duplicate and put in some new graphics. The

character/block

checker

checks

through all the

blocks Steve

has designed.

With about

150 blocks,

each contain-

ing 16

characters,

he could

accidentally

miss some

characters out. Using the checker he can make sure that he's used every character. Both utilities are aimed at saving memory.

I've decided that the interactive mail will only appear in the Happy version of each level, as we'll be running short on memory very soon. The Sad version only needs to be used anyway, so I've

adjusted my code to take this into account. The stars will only appear if you're in Happy mode as well. This means that my monster routines have been put on the back burner for a while...

STORY While creating the Spotty level's trees, using the priority function (which makes Mayhem go behind certain colours), I stumbled across a weird-looking effect that I noticed I could use on some other levels. When I made Mayhem walk behind a particular character (green and cyan character - cyan being the background colour and green being the character colour - it looked like he was wading about in some sticky water.

If we put this effect in the game, we could slow down the player movement to give the effect of resistance. It might even design a whole new level around this neat little effect, although there may be a problem with playability. If you spend most of the level running around in this goo, it may seem a bit frustrating compared to the speed you change around at on other levels. We really need to experiment with the level design to get the balance right.

MORE MAYHEM NEXT MONTH...

The outside world's first glimpse of Spottyland, where the mountains are pink, the trees are green-yellow and everyone thinks that The Wood is a really good programme.



COMMODORE FOURTH LEVEL NEXT April 1993

Let's make a MONSTER

More monsters! More music! More colour! More animation! More levels! The game that promises to be THE C64 release is growing faster than Dave's waistline. The Boyz creating Mayhem In Monsterland fill you in on the latest developments.

THE STORY SO FAR...

Mid-wintered John and Steve Howlands, known in the world at large to the Mighty Atom and, er, the other half of the duo, have embarked on a mission to create the greatest C64 game the world has ever known...
Rightest in Monsterland. And if anyone can do it, these boys can - they name the game. But brought you *Creature 1* and *2* in last month's thrilling instalment, the boys started to introduce some battles into the game and started work on a new level, *Spartan*...

Here is the Mayhem news for February. (Boyz) More monster soundbites mean that the routines in this game gain the ability to inflict pain on poor Mayhem (boyz) and Mayhem gains the ability to inflict pain on them (boyzoyz). (Boyz) On the graphics side a brand new level called *Forestland* surfaces, out of out of the past of inspiration. (Boyz) Steve produces some dead funny interactive music. (Boyz) Details to follow.

FROSTY FEBRUARY

WEEK 1

JOHN We've had an abundance of white flakes this month, and we're not talking about Steve's chestnut. Yeg, it's been snowing! The last time we had snow was two years ago, and it inspired us to write the snow-falling screens in *Creature 1*... but this year it just froze our tits off.

Those of you who read last month's diary (please read!) will know that I started work on the monster routines. These included the spilling routines (hoping as to have more than eight sprites of (snow?), movement routines and animation routines. Most of the

week was spent getting these routines to work properly. Once they were, I added another major feature that allows me to define each monster's colour. Obviously every sprite can have a different colour but now it can also have colour patterns. If we want an explosion to fade as it dies out, we can change its colour as time with its animation.

As with our background graphics we wanted more than the C64's 16 colours for sprites. However, we can't use the same method of colour mixing that we're using for the level graphics (see *C7000*) because we haven't got enough sprite colours. So I added a different colour mixing routine for the sprites. This rapidly flashes between two colours (of equal brightness) to create nine shades. Believe it or not, Mayhem in *Monsterland* looks even more colourful.

STEVE Late last month I came up with the idea of putting some dark forest routines into *Spartan*. Now I think that some sort of lighter background would be better, just to drive home the message that you're done the business (surviving the level from hell to happy). Therefore, I'm starting to put some diamond caverns in this level, which have holes on top that act like roof lights. The sky above the roof lights is cyan while the insides of the caverns are black, so there is a beam of light that shines from the cyan to the black, while the light enters the hole. Although I removed the big bushes from this level there are still some trees and vegetation

John is now here practising his same swarming techniques. Steve's today, meanwhile, is responsible for getting us all that snow! Looked to time to write the rest of the month!

PART SEVEN



to keep the place looking interesting. These trees have incorporated the idea that I mentioned last month of having empty spaces in the forest, which does actually add that extra bit of atmosphere - all at no extra cost.

WEEK 2

JOHN The next bit of monster code to be written is the direction routine. This detects the positions of all on-screen monsters and compares them to Mayhem's position.

Basically, if a monster invades your space either you die or it does. I've written the core of the routine (called *UTM4M*) and it simply flashes a sprite's colour if it touches you. Next, *UTM4M* has to decide whether you kill the monster or not; this depends on where Mayhem is and what he's doing. If he's above the monster and falling down (and after you can go left!) then the really will die. Otherwise, Mayhem will die. (Well, he doesn't die at the moment, he just changes colour, which is a lot less painful.)

Leaving *UTM4M* for a day or two, I decided to write some miscellaneous routines for Mayhem. The first one takes Mayhem from white to normal colours and will be used when he gets up a fence. The second one is the invisibility (dead) routine which makes Mayhem pale and loses a trail of little stars behind him as he changes (and he should run out). The third one uses the sprite animators that appears behind Mayhem when he dies, making them appear at his





Let's make a MONSTER

And in the eighth month did the Apex Boyz say, "Let Monsterland teem with monsters." And thus did the genesis of a classic game continue...

It's time for a population explosion in Monsterland. We've already started designing the monsters, so now we've got to stick 'em in the levels. But we have to take the technical capabilities of the 64 into account. It's one thing to fantasize about 30 quality monsters per level, but there's no way the bulky 64 had the memory of the horsepower to achieve this.

So we've got to limit the number of baddies we use—but not by too much. If we only include a sprinkle of enemies in the game, it'll become too background-oriented. That's to say that the obstructions came mainly from the background and not the monsters, giving an empty feel. We have to tread a fine line between a playable level and a playable limit.

MEGA MARCH WEEK 1

JOHN Unfortunately as it may seem, I spent a few days this week fantasizing Mayhem's control system (i.e., Jager's). You're probably wondering how Mayhem's control can possibly be

always notice something that could do with improving. So now if Mayhem charges into a wall at full speed (which is pretty damned fast), he gets a puff of smoke in his face (just, it was either that or a roadblock, if he falls from a hefty distance he gets another puff of smoke under his feet (look I like smoke, okay?), this also given him the ability to charge through invisible monsters if he's got a shield bonus. All these features give him an over-the-top sense of chaotic frenzy.

STEVE At the end of last month I came up with an idea for a brand new level, which has big mountains (as tall as the screen) in the background. This is the level I'm working on now using some other discarded ideas I had a few months ago (when I was designing another level). In particular, I had another sketch of a tree with a big smiley face and arm-like branches resting on its trunk. This adds loads of character and makes it look like a tree with an attitude (like that famous rapper old-Tee, then—Dave).

At the moment the tree is the only piece of vegetation on the level, so I need to be careful now—the rest of the level has to be in a style that

fits in with this tree. I can't add bits of shiny platforms and background graphics because they'll

look just a bit too... well, nice. So what I'd like to do is add some platforms with vegetation, and maybe some more natural background graphics until the level is populated enough with green stuff (in use the technical team. This level has been only

named "Rockland"—until I can think of something more outside (as, like Treeland perhaps)—Ed.

WEEK 2

JOHN Not I'm working on the monsters again (the little darlings have missed me). Instead of having to kill a monster to reveal a bonus, I've made it possible for bonuses to be placed on platforms, ready to be collected. I've also added some bonus modification routines, which physically alter the game according to the bonus Mayhem has picked up. These include the "change self" and "score multiplier" routines.

Once Mayhem has picked up the change bonus he can change at full speed around Monsterland. As he never loses this ability, the bonus will never disappear. But shields and score multipliers can be picked up over and over again. If Mayhem has a shield and picks up



Monsterland is finally going up to its name. The number 50000 is looking on prize.



Mayhem's brought happiness to the land, but there are still some monsters to avoid.

A self-portrait of John Forbes Ferguson for use in (insert)



another. He should still repeat. Score multipliers can be upgraded, increasing in value every time one is picked up. The first multiplier your score by ten, the next by three, up to five.

Unlike Castles I and II, MM will feature **MOVING** scenery.

STEVE I'm still working on Rockland at the moment, adding some chequered backgrounds. I've put some green and yellow black-ground ponds into the level, with some clear water halfway

down them. This effect is achieved by making the green and yellow chequers above the water blurred and out of focus and from the water line down I gave the chequers a dark, crisp definition. To add that extra spark of realism I put some stone across the water surface.

I'm also starting to add some platforms which include slopes. I can use any characters from the character set to make the slopes, but there are strict parameters within which I have to work. I'm build up the slopes by placing these characters next to each other, then placing the same three characters on the screen again but, up one and across two characters from the original position. This is repeated all the way up the slope. These characters are checked by John's code and Mayhem moves upwards when they're detected so it looks like he's walking up the slopes. (Check out the accompanying box.)

WEEK 3

JOHN With the screen full of coloured, moving animated monsters, Moveland is looking great! As Mayhem runs about, the monsters wrap around the screen - going off one side and appearing on the other. So the next section I must write is my **ALUOFF** routine. This checks each monster's X position to see if it has scrolled off the screen, turning it off as it has. I've allowed a buffer either side of the screen before the monsters switch off (which is about two thirds of the screen's size). This allows my monsters to walk or fly around 'off-screen' so that Mayhem can't back towards them they will still be there!

STEVE John's been compiling a list of extra sound effects which need to be put in the game, and now it's up to me to create them.

First, I'm taking the 'big jump' effect, which you get from the springboard alone when you jump on them. This sounds similar to the jump effect, but is louder and slides to a much higher pitch, because you jump much higher.

Next on the list is the fall-down effect, which is a short high-pitched sound that mixes noise

IT'S A JUMP TO THE LEFT... ...AND THEN A SLOPE TO THE RIGHT

As Steve mentioned this month, creating slopes is not as simple as it may at first seem. There is a restriction placed on what characters can be used where. Mayhem looks for these special characters and, if found, the slope routine is kicked in. Mayhem will then continuously check which characters are around him and adjust his Y (up and down) position

This might look like any old slope to you, but...



and triangle waveforms by 'wave flipping' (if you know what I mean, misuse). Then there is the landing effect, which is a fixed sound, which uses the quiet waveform mixed with a little noise for that bit of playness. So now it's given that title bit to John and see how they sound in the game, playing in all the right places over the level music.

These effects have to be tested like this for one reason, a sound effect might sound brilliant in the DPA editor, but it may be too quiet over the music or may even clash with some of the notes. I will probably have to go and change any coloured effects after we've heard them in the game.

WEEK 4

JOHN We use a demo-version of Prole this week having heard claims that it was the greatest C64 platform game ever (or, we never said that - did, do, with some exaggeration we looked it up. Our verdict? What it can do, but it certainly isn't the best platform ever. Mayhem in Moveland has a larger playing area (the entire screen) with more colours (including some now standard C64 colours) and runs twice as fast.

Anyway, back to what will be the greatest C64 platform game ever (passed? Never!). **ALUOFF** has been coded, so now I've got to map the monsters on to the background maps. This adds another type of map - monster maps - that have to be defined in each level, effectively

on-screen according to his speed. If 'off' characters are found, then he reverts back to his normal movement (where his Y position is modified if he jumps or falls any). These special characters need to be checked for constantly, allowing Mayhem to, for instance, land on a slope and then walk up or down it.

Steve's responsible for the cheat code of the game. But he can't let his tongue slip now they there are rules he has to follow, like placing control characters in the slopes so that Mayhem knows when to start walking up or down them.

being overlaid over the background. This routine, known as a sequence, needs to handle both left and right directions with eight different speeds and will position each monster at the precise co-ordinates we want them. I've decided to get it working in one direction, then duplicate and modify the code for the other direction. This simplifies the initial design and is therefore easier to debug if hope/wish/dream.

STEVE You may remember a screen shot a few months back of Southland. This was a mock-up screen created using our graphics editor which means that we can't incorporate it into the game until I've converted all the graphics into blocks (explained in *CG20*). Once these blocks have been created I still need to create a basic level map to use as a rough starting version.

Every block I define needs to be documented on paper with a number, a short description, a sketch and in some cases a table of how to join it to other blocks. This could take up to a week to complete, then an extra couple of days just to make a temporary map to use if all the blocks join together. To coin a phrase - it's time.



NEXT MONTH

The next instalment sees the continuation of the monster installation (hop that they're). We've also decided to put in a feature which enables us to produce spots of unlimited length (wow!).

Let's make a MONSTER

It's getting there. All the vital routines have been written. All the levels have been started. Now it's a case of tweaking, refining, playtesting and squeezing in the last few ideas. John and Steve



THE STORY SO FAR...

Remember Cyberdyne Warrior? Greatstart! Creating JP Watt's the first. There are two actually. They're all different and they were all written by Apex. Now the Apex boys, John and Steve Rowlands, are writing a new game, *Mayhem in Monsterland*, and we can promise you — it's going to be a monster!

Rowlands are getting so excited about Mayhem in *Monsterland* now that we virtually had to force them at gun point to write this month's diary.

Some of you might be thinking by now, "I wish those Rowlands would get on with it!" But we have got an excuse for taking so long over Mayhem. Honest. Y'see,

because Mayhem is *Monsterland* is an original game we have no set guidelines to follow. The advantage of this is that we can use our imaginations to the full and add whatever we want (any way we want to). Having said that there are disadvantages, the game tends to drag a bit (any way we want to). Having said that there are disadvantages, the game tends to drag a bit (any way we want to). Having said that there are disadvantages, the game tends to drag a bit (any way we want to).

Another disadvantage is that whatever we do design is constantly being tweaked. The game is never finished until it's finished. Miff is approaching the stage where the essential routines and graphics are nearly finished, so now we're spending most of our time adding new ideas to enhance the gameplay and adjusting existing ones. But that's where the joy of creating games, as opposed to converting them, is to be found.

AWESOME APRIL WEEK ONE

JOHN All my attention is focused on the monster enemy sprites at the moment. I've spent a

lot of this week preventing them from wrapping around the screen (existing off one side and appearing on the other), while Mayhem walks left to right. Testing these routines involves a lot of running around and checking that the monsters didn't disappear. So Mayhem has spent most of this week charging up one damn bloody slope in Pookland (but then, that was what he was born to do).

All this action has given me an idea —



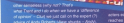
as Mayhem charges up a slope and reaches the top he could take off for a short while (if he's going fast enough). So by the end of the week he could, and it looks well cool! If you time it right he doesn't even touch the top of some slopes, he just lands on the other side as he falls.

Little I was tweaking Mayhem's movement routines (for what seemed like the millionth time) I thought I might as well carry on. The next thing to add were the 'springboard' monsters. These are beasts that won't let Mayhem if he runs into them, but they will make him bounce to incredible heights. So I wrote

this routine and included a cute bouncing sound effect as well. The idea seems to have paid off as it looks really cute (you can even see Mayhem taking up as he gets flung into the air, then landing down as he falls back towards the platform).

STEVE The graphics for the levels is another to be in need of never-ending attention. This week I decided to try and get Pipoloid into a near-finished state so that I could put it into the new *Mayhem* editor (which tests the happy version of the level and takes them all gloom).

I've added some large blue and white checkers to go in the background of an enclosed part of the level (which looks a bit like a big room). These rooms used the bricks that were already in the level to form the walls. I thought the whole set looked quite cool (in a comfortable sort of way), but John thought otherwise. So what happens when I want to do one thing and John wants to do something else? No, we don't! Each



In return for a set of cash and a set of funny Andy grets on the invaluable opinion. In this case I've totally wasted my time doing Bode graphics because the majority decision was, "ip-its-out", "idocap". I'm still messing around with the slopes of Pythagoras, trying to superimpose Bode over something other than the background colour (which hopefully will be more in John's and Andy's tastes).

▶ I looked back at my minister colleagues on Monday—pale! I haven't touched in two weeks and decided that I really *am* inflexible.

different way. So, putting pen to paper, designed a series of flow charts which will give us a better tomorrow!

Street City designed and made in Italy

The case will need future

STEVE | I thought that having all these different kinds of things

ing lines on each level, one for Hara and one for Basil, both using two channels. On the final version, when Mayhem is the finishing line he will fall through it to a chamber below to ... ah but that's testing. Consequently two of the other also need to be the sort that Mayhem's

add, Mayhem means different characters doing things – and we don't mean that he comes off them out for a pint while turning up on others and ignoring them. We're characters as in 'character sets' here.

There are three different types of characters that stop Mayhem (and/or) walk away (pathetic): ones that Mayhem can go through, but land on and walk along the other platform; and ones that can't pass through (and/or) the black hole. We have five types per level in terms of the amount of characters in each of the levels that that particular level. So it's not all 40 characters Mayhem can't go through, but he can jump through and the rest character act as background graphics. We get the first type to fill and the second to fill. It's just got three pieces in it. (source: www.ign.com, 04-02-02 and 04-02-02).

For the finishing lines, two of the characters would be in the first section and two in the last. At the moment, Parnaveli, most of the characters in all the sections have been used, which means it's time to go into all the levels swapping characters around (it's only a chess - board).

QUESTION Volvo's still marketing cars as "moderately conservative." What's that, exactly? Volvo's saying, "We

**of bad guys
to be in the
s at least**

So back to my monster sequenator. As you'll remember, last week, I finished it, but there was a slight hitch. Mayhem could only run to the right. Obviously he's going to need to run left as well, so I have to write another set of routines to cope with this (obvious, considerably, is what I spent the majority of the week doing).

First I created a few flow charts (like the one below), tested them, then typed them up. The rest of the week was spent testing, adjusting and releasing them. Now I have a rather nice, professional looking sequencer which is

```

graph TD
    Start([START]) --> CheckScore[CHECK SCORE]
    CheckScore --> IsBlank[IS BLANK IN MESSAGE?]
    IsBlank -- YES --> GetBackground[GET BACKGROUND]
    GetBackground --> SetScore[SCORE = 1, MESSAGE]
    SetScore --> SeqMsgQ[SEQUENCE MESSAGE?]
    SeqMsgQ -- YES --> SeqMsg[SEQUENCE MESSAGE?]
    SeqMsgQ -- NO --> GetMsg[GET MESSAGE?]
    GetMsg -- YES --> ScoreLine[SCORE AND LINE]
    GetMsg -- NO --> Line0[LINE = 0]
    ScoreLine --> Line0Q[LINE = 0?]
    Line0Q -- NO --> Line1[LINE = 1]
    Line0Q -- YES --> Line0[LINE = 0]
    Line1 --> Score1[SCORE + 1]
    Line0 --> Score1
    Score1 --> Is10Q[IS 10?]
    Is10Q -- YES --> Score0[SCORE = 0]
    Is10Q -- NO --> CheckScore
    Score0 --> PrintScore[PRINT SCORE]
    PrintScore --> PlayYesQ[PLAY? YES?]
    PlayYesQ -- YES --> PlayAgainQ[PLAY AGAIN?]
    PlayYesQ -- NO --> CheckScore
    PlayAgainQ -- YES --> CheckScore
    PlayAgainQ -- NO --> End([END])
  
```

Flow to the start of each play. Each play will draw up another ten cards making a puzzle.

There is also a large and vibrant black market with almost any Southern item available for purchase in

only missing a few outlines, which will handle better, I think. We want to put into the game at a later date (more on those when we do them).

STEVE It's about time I did some serious plans, single and multiple ones. The first thing to do is to get lots of ideas on paper, then convert them to pixels. I go about this by looking at the level graphics and the rough maps I've done, then deciding on what sort of aliens are needed for each particular format. For example, if we have a water section (which we're actually planning) we need some fish and other aquatic underwater adversaries.

The sketches I now have include a baby dinosaur called Dino, a monster with a spiky shell on his back (that will tell you if you touch it) and a giant mole-type monster (look out Chasney Harker!). I then proceed to convert these few ideas to see how they will turn out. Pixel perfection plays a primary part for pretty pictures in this program so a lot of our aliens are amazingly animated (it's Amazing Monsters). But having done the first few aliens, testing and all, I realised that the cast of bad guys will need to be in the mountains at least.

WEEK FOUR

JOHN The game is getting to the stage where we find ourselves playing it when we should be working on it, which is always a good sign. This not only means it's getting

WHAT'S IT ALL ABOUT?

Just in case you haven't been paying attention, here's a quick resume of what *Mayhem in Monsterland* is all about:

- *Mayhem* is a quite different.
- He lives in *Monsterland*, (okay, nothing surprising so far.)
- *Monsterland* is not a happy place, it's all grey and rains all the time (a bit like Port Talbot, really).
- *Mayhem* has to make *Monsterland* a happy place once more.
- He also has to collect famous stars and stuff up a few enemy monsters.
- There's a brilliant VR sequence where *Mayhem* battles amazing alien-moving creatures made up entirely of triangles... and (er, maybe not).
- But, no kidding, this game is going to set new standards not just for the C64 but for platform games everywhere (there's that for a build-up!).

more and more playable, but gives us the opportunity to playtest it as we go along. The one thing we've noticed is that while each level is 25 screens long, it seems much less.

This is because of the sheer speed of the game. If it was possible for him to change from one end of a level to another (which it won't be in the finished version) it would take about 20 seconds. For reference, Clyde Ruskettle from

Creatures and Creatures 2 (obviously) would take about two minutes 10 seconds to run the same distance.

To combat the map length problem we've done up with a technique which allows us to produce massive maps. It effectively lets us re-use parts of each level to give a long enough map for *Mayhem* to traverse and is basically what I've spent all week doing. I thought it would only take a day, but due to the structure of

the world, it turned out to be a lot more complicated than I first thought it was going to be — an evil, no change there then.

STEVE So far the game has no underwater sections, mainly because we thought of the idea only recently. Most of the levels have now been started and their character sets almost completely used up — except *Spookyland*.

As well as water on *Spookyland* we can now include underwater slopes (soon!). It goes without saying (no-it doesn't, you're just about to say it) — Ed that *Mayhem's* control mode will change when he's underwater, slowing down his speed and making buttons appear instead of smoke when he slips. *Mayhem's* sound effects change to bubbly ones too, to make the underwater atmosphere just that little bit more... er... underwater.

The water is in a part of the level that has a chequerboard background — below the water surface everything gets darker (as it should). This section uses some nice new colours. Above and below the water which are mixed up using our special methods explained a few issues ago. A selection of platforms used in *Spookyland* (that also appear above the water sections) have been duplicated for underwater use.

To make them look submerged in water I used a manual colour addition technique — giving them a blue tint. This is quite effective and does actually make the whole lot look, sort of, underwaterish. In fact, the graphics came out looking so good, we even surprised me (mad as hell, isn't he?) — Ed.

Once we've finished *Mayhem's* control mode for the underwater sequences and included the necessary colour shifts, it should look pretty amazing (especially for the humble C64). Hold on a moment — maybe we should rename the game *Super Mayhem in Monsterland*? Aren't



NEXT MONTH

May is going to be a mega month for *Mayhem*. Not only will more monsters be created, but more monster features will be added. So tune in next month for another monster installment.



Let's make a MONSTER

THE STORY SO FAR...

How do you top *Conquest II* (read with *Mayhem in Monsterland*) that's how. The brains behind both games, John and Steve Penkett, aka Apex, reckon that *Mayhem* is not only going to be the most amazing slice of software ever on the C64, but it's also going to put console games to shame. It's a platform shogunship that we for has been 18 months in the making. Basically, the plan is to build a monster called *Mayhem* who decides about *Mayhemland* trying to make it a better place to live in by knocking off all the dinosaurs whenever *Conquest* makes a move... [you just made that up - did]

Forget *Jurassic Park*. This year's biggest dinosaur smash is going to be *Mayhem in Monsterland* and the Apex Boyz reckon it's going to be the greatest game ever on the C64. They keep going on about it. We can't stop 'em. Uh, oh... here they go again...



can't create the perfect C64 game (as perfect as any game can get). The adjustments made this month have made a big difference to the gameplay. It feels more interactive than before, with some monsters not moving along set patterns but appearing to have intelligence. The game just keeps on getting better.

could get a monster moving left but looking like it's walking right - moon-walking monsters, however. This process is what I have most about creating monsters. So for *Mayhem in Monsterland* I've come up with a new animation system - directional animation.

As Steve suggests, it animates my monsters depending on the direction in which they're moving. So giving a long threat to my timing-out blues, my monster animator now checks each monster's direction 25 times a second and calculates what animations are required. Not

MONSTROUS MAY

WEEK 1

JOHN Mobile monsters need a movement pattern. This will tell the monster where to go, to take, and what it should look like at each point along its travels. For example, if there's a monster walking left and right on a platform, its movement pattern tells him to: walk left to the edge of the platform; pause; walk right to the other edge; pause; then start again. His animation pattern tells him to: animate monster using walk left frames; stop and face forward (pause); animate using walking right frames; stop and face forward; then start again.

The movement and animation patterns have to be timed so that they coincide at every stage throughout the sequence otherwise you



STEVE After a great deal of thought about how we're going to market the finished version of *Mayhem in Monsterland* we've decided to release it as a mail order only game. This has a number of advantages:

1 The C64 short space is pretty software shops is currently decreasing. This means that loads of you simply won't be able to buy the game.

Monsterland's resident monsters can't just wander around aimlessly. When you load the final game it might look like they do, but they don't. We've had to tell each and every one exactly where and how they should move about the screen. So this month we've edited or adjusted three major direction routines. In fact, a better term would be 'direction dependency' routines because the way a monster moves will depend on other factors, for example, we can tell a where to head in relation to *Mayhem's* position, or how it should animate at any given point along its path.

As we mentioned last month, we're forever equating *Mayhem in Monsterland* to our mis-

Our delirious! Shogunship. The details go just over the page.





from high street shops, and specialist retailers are difficult to track down. C&A magazines, however, are generally available, so if you spot an advert in them, then the vast majority of C&A users will have access to the game.

Q What you see a game in the shops the money you pay for it is divided by several parties. A big chunk goes to the shops and the distributors of the game. By using a mail-order system we can sell the game more cheaply by cutting out the middle man. That's better for you because you're getting a quality game for less cash, and better for us because the lower price-tag should encourage more people to buy the game.

WEEK 2

JOHN Andy Pollock was down again this week, playing the game most of the time. At

one point he collected a shop-jug (good 8,750 stars!) He was awarded 57 lives but only 105,000 points. This isn't nearly enough, so I multiplied all the star scores by 10 (remember, stars give Mayhem different scores depending on how fast they are rotating when he collects them).

Well, my little monsters are still screaming for attention (you're beginning to sound like Christopher Lee - I'd, as I've been studying their movement routines. As I've now got directional animation why not go a step further and put in directional movement? This is more complicated than directional animation, though. The monsters have to move in relation to Mayhem following him left and right across the screen. However, a few few chests and a week later, and Mayhem in Monsterland has three 'Fallen' monsters. Using directional animation they all behave correctly, too, whether they're walking left or right or standing still.

STEVE The first part of this week has been spent enhancing Spotlyland with all the water and underwater slopes. Much like the slopes with control characters we mentioned back in issue 30 the water surface also needs characters that control Mayhem's sub-aqua movements which will be more sluggish than his normal movements. When Mayhem falls through the surface of the water the control characters will detect this and switch the controls over to underwater mode... well, in theory, at least. I expect that in reality we'll have problems when John starts to code it and finds some major

design faults we didn't think of it has happened before, more than once.

Now the water characters are tested I have to note down which ones will be used in the control table. John's code will check a character under Mayhem every 80th of a second whenever he is on the level. If a character from my table is found there then Mayhem's gone diving.

WEEK 3

JOHN As Steve mentioned a few months ago,

Mayhem not only walks in front of background objects, he can also walk behind them. Spotlyland has trees which Mayhem can charge behind, giving the impression of depth. The enemy monsters can also appear in front or behind objects, giving an even greater feeling of depth. That I've just modified my collision detection routine so that Mayhem can only kill (or be killed by) monsters that are in the same plane as him. That's

It's gone all wibbly wobbly instead of gratey scrapey.

to say that if Mayhem is behind the trees he can only interact with monsters or bonuses that are also behind the trees - he doesn't touch any monsters that are in front. I can even go a step further (that's not stopping me this month) and make it possible

for the monsters to toggle their priority with the background while they're moving. For instance, I created a monster that walked left in front of a tree trunk.

Then, as he turns to walk back right, he switches his priority so that he goes only so that he

goes behind the tree (the switch is invisible as he isn't over the tree when it occurs). Then he walks back, behind the tree finally switching in front to walk again. All this gives the impression that he's walking around



MONSTER MIND

Your names? John and Steve Rowlands. Your occupation? Programmers. Your specialist subject? The making of Mayhem in Monsterland 1992-1993. And your questions start... in three month's time, in issue 35, actually. That's because we haven't said the questions yet. Or rather, you haven't. Yes, this is your chance to ask Steve and John any questions you've got about Mayhem. If there's anything you want to know about the game, something you haven't quite understood in this series of features or you'd like their advice on the best way to buy, send your questions to Monstermind, Commodore Forum, 30 Mooneath Street, Rath Aven SA1 2BW.



the punk. On top of this, with the detection I put in earlier, Mayhem must know it is that he sneaks past behind the tree when the monster's walking in front of it.

STEVE Now the water graphics are complete. I'm going to sort out the water sound effects. First of all the rain effect which uses the triangle waveform instead of the noise waveform. For those of you who don't know what the sin about it's going all wibbly instead of pretty steady for, yep, that's perfectly clear —

Ed. The

John and Steve with Andy Robinson, Mayhem's name, who will play to him.



DIY MONSTER MAPPING

In the grid below there are various one sprite monsters Steve has created for the game. Running along the bottom of this feature is the complete map of Cheeryland. Be the choice is yours. You can either simply add the sprites or you can take advantage of this unique, once in a lifetime experience — yes, you can be a Monstercart! Just cut out the sprites and stick them on to Cheeryland to create your very own monster map! Yeah, right!



ried new effect to do is Mayhem's jump which is now a full 40000 buzzer-buzzing sound. Last but not least is a few change sound which, just like the others, is similar to the original counterpart, but unrecognised. Towards the end of this week I started doing some happy dances, most of which are one sprite, but I'm now working on the multi-sprite ones. On the whole the ideas were down on paper first, as well as a lot of graphics, then out into sprites and animated. I've just created a diabolical (the one with the fat body and the long neck) using three vertically-expanded sprites. I've animated him so that his legs around slowly behind is what a diabolical would do — it's amazing. I'm planning to do a big charging dinosaur next.

WEEK 4

JOHN The time has come to introduce Mayhem to another hazard — monster bullets. A bullet can appear in loads of different forms ranging from a small flashing star to a body version of the monster that fires it if you know what I mean! Whereas most games' bullets just have a direction to fire in and a speed, Mayhem in Monstercart has bullet patterns. This enables us to adjust fire speed and direction so they move, making them look much more realistic (as visible as a baby-shaped bullet can look, anyway).

Extending my bullet routine even further, I decided to put in directional firing (well, I had to



do something directional this week). This will tell a bullet to fire in the direction in which the monster's moving (left or right). So if it's a Follow-Ut monster the bullet will always fire towards Mayhem because the monster will always be walking towards him.

STEVE The charging monster time, using what looks a real like a frog-sprite. This is also a vertically-expanded monster but it's only two sprites wide, the way its animated reminds me of something out of Mr. Men. A few of the small nasties are based on dinosaurs but others are funny but like the monsters in Creatures too, bobby things with big eyes and feet, the main difference being that Mayhem in Monstercart's monsters look ever better.

So far on the one-sprite alone but I have a plump tyrannosaurus with no neck, a spiky, shelled monster, a cute hopping rabbit thing and a flying rabbit. I've also been sketching more large monsters, two of my favourites are a giant spiky dinosaur with a big mouth, tongue and eyes. Then there's a big monster called Burp who sits and shoots at Mayhem's, looking pretty disgusting in the process. I suppose we'd better decide where we're going to stick them all next.



NEXT TIME

Join us for June when we see the creation of THE editor — the editor's editor, the one and only (please not) Mayhem Monster Editor. This invaluable tool will let us map our monsters on to Monstercart. We just hope it works, otherwise the game could end up being called Mayhem in Land.



Let's make a MONSTER

THE STORY SO FAR...

John and Steve Rowlands, two stiffs who go by the name of the Aphex Twins, wrote a game called *Captures 2*. It was reviewed and adored by D&A owners everywhere and so the Twins decided to write a sequel. The gamers called Mayhem in Monsterland and it's all about a monster who wants to bring peace to the world and the McEls back to McDonalds. Or something. This month, the computer monster makes his debut and Ruffard gets a haircut.

They're smart, dead smart, smarter than a particularly bright Dolphin with a Ph.D and some coloured biro's. They haven't been letting their smarts go to waste though; the Aphex Twins have been writing a blockbuster game. This is its story.



Jurassic June WEEK 1

20000 The monsters of Monsterland don't all die as soon as Mayhem jumps on their heads, that would be too silly. Some have higher hit-counts already they require two or three jumps. This means that Mayhem has to keep above them as

they move,

bouncing off their heads until they explode. Until now that is. His nose has strength which varies, depending on how far he has fallen. The further and faster he falls, the greater the force of impact on the poor monster's head.

The rest of the week was spent coding all of Mayhem's underside routines that Steve's monitored before. These include the colour change as Mayhem becomes submerged, which meant I had to add a raster interrupt to split the sprite colours. His under (which appears when he changes and slides) has been swapped for some bubbles, which go well with the bubble sound effects that Steve has already created. The final adjustment was the slowing down of Mayhem's movement, as his nose is cutting against the resistance of water and not air.

Mayhem in Monsterland is getting to the stage where we spend most of our time playing it, instead of working on it! This has happened more with this game than any other we've written. The production rate may be down, but at least we're having fun. It's a tough job, but somebody's got to do it.

Over the next four weeks we aim to get all the levels as finished as possible, leaving us the last task of populating them with monsters. To do this we need a monster editor, which must be written specifically for MIM. We also need a set of monsters which must be described and converted to the G64. This will give us the power to fill Monsterland with monsters, with sad ones on the last levels and happy chappies on the happy versions of each level.



Some time in the future all programs will come equipped with built-in 48-432 ports.



The stages screen has been updated now it features when you get bonuses, hidden or otherwise. Bit more ready.



Welcome to Spartyland where Mayhem's just about to do battle with a scarce monster, Lumme.



Beachy jollyland, its some secret caves, passages, character tunnels, levels and even Salsad Ruffard.



STEVE This month kicks off with monster designs, mainly for the underwater section of *Spootland*. Starting with a jellyfish monster that has a fat, round body, a big bill and two little webbed feet sliding away. Then there's the paper fish that spouts (purplish or what?) out of the water and then falls back down to obstruct your progression through the water section. Then came another alien for out of water. I had previously designed a baby dinosaur called Dino, and I now have a similar monster which has big spiky armour over its back and head. This can only be killed by changing into his front, but he'll only appear on later levels.

WEEK 3

JOHN Most of this week was spent designing and coding the status-point system the game will use. After a lengthy discussion we decided to use ones which Mayhem can activate rather than fixed points in the level that he returns to. These points will probably be a series of closed doors which will open when Mayhem runs over them. He can only open one at a time, though, and the previous one is closed automatically when a new one's opened. When Mayhem appears after being a life, it looks like he's appeared from within the door, with *Monsterland* zooming out from behind him. It looks rather spiffy, actually.

With more and more of our time being spent running around *Monsterland*, we're getting a better idea of how the game will play once it's finished. Although it will play extremely well, we felt that each level was missing a time limit. This not only adds a bit of tension to the gameplay, but stops the player just standing around admiring the view (although we couldn't blame them). This meant a redesign of the status area to allow for the remaining time to be displayed during play. We also stopped the status flashing because:

- (a) it didn't look too hot on screen shots and
- (b) we wanted flashy bonus parts of the status at specific times to reward the player, for example when time is running low.

STEVE During the play of the game you will, amongst other things, be able to pick up bonuses. Some of these will be hidden, although the vast majority will be quite easy to find. A problem does arise when you pick up a hidden bonus - how will you know what you've picked up if you can't see it? So we came up with the solution: whenever you pick up a bonus, hidden or not, the corresponding part of the status will flash black and white rapidly. This



attracts your attention and lets you know what new goodies you've just collected. For example, if you picked up an extra life bonus, the '1 UP' part of the status flashes. This happens whether the bonus is hidden or not, and works extremely well in practice.

When you're in the last part of the game at the start of the level, you're required to collect a quota of magic dust bags left by some alien. When you've collected a sufficient amount, the 'MAGIC' part of the status screen starts flashing to let you know that you can now leave the level and give all the magic dust bags to Theo Saurus. "Others

I say, that's a very spiky monster's looking at you, do you think it was something you didn't find too spiky? And he's a, and



he'll" you ask, what, Theo is Mayhem's friend and it's his job to sprinkle the magic dust across *Monsterland* to make it happy. Mayhem cannot spend this dust about now, not because he's unable to fly (a lot like that stupid green duck... ahem).

WEEK 3

JOHN Yet another major part of the game was modified this week. At the start of this month I mentioned the monsters' movements -

these have now been expanded to incorporate some new ideas. As well as simply having monsters that take a certain number of jumps to kill, we've added ones which adopt Mayhem's movement. These include invincible ones which Mayhem 'bounces off', 'springboard' monsters that inflate their cheeks, spiky monsters that hit Mayhem if he lands on them and ones which do nothing to him (which can be used for background effects). We also have added an 'imposter Mayhem' monster which steals Mayhem's status upon contact.

Now that we can cope with spiky on their heads, we've designed some with spikes on their backs. This means that Mayhem will be able to change into the back of these monsters, but will still have if he changes into the front of them. This created the need for 'directional bounty' - bounties that check the monster's direction in relation to the position of Mayhem. This enables us to create a monster with spikes on his head and a shell on his back. If Mayhem jumps on the monster's head he'll die. If he changes into the monster's back, he'll bounce off his shell.

The only way he can kill this horrible

beast is by changing into the front of him. All

this not only gives

Monsterland adrenaline-pumping gameplay, but gives the monsters a little personality (and we don't mean *Flower Cartels*).

STEVE Last month I mentioned a sketch of a big spiky cucumber monster. Well, five now convinced this is viable and animated. It consists of three vertically expanded spikes, and is a frighteningly big monster to come up against. As it has spikes nearly all over its body, it will almost certainly kill you if you jump on or charge into him. Basically you'll stay well clear of this menacingly mean mauling monster.

The maps for *Spootland* are virtually complete (a few worms were shown a couple of months ago so the next task is to get this level in a really finished stage - and to do that, I need to do the spiky bugs). This entails spelling through the level a screen at a time deciding what and where we should put monsters. Now I



Jellyland's monster looked better. When Mayhem bleeds, he's a quick test to change down a badly monster.



Don't those lovely pink granite mountains look nice. Welcome to Rockland, home on the rocks.

We've made a MONSTER

Jubilant July Week — 1

JOHN I was in French class for the week, so we decided to

2002



Chairman Mao once said: "The journey of a thousand miles starts with just one step." But then he was a commie slaphead with cack taste in clothes. Far better dressed and at the end of their journey are the funky fresh Apex twins.

THE STORY SO FAR...



*This course is taught in French.
*Required

Here not one often finishes months of production, with delays in subcontracted wiring, components, etc., are still required to finish it sooner and get, every game and have another has made time to long to fight. But that's what you get for designing high-quality external games.

There are two distinct types of loading routines. Firstly, there's the routine which loads the game itself into your Writable CMA, followed by the fixed loader which loads in each level sequentially into one or more level pointers, etc. etc. etc.

That is typically the worst part of game production and has kept almost the same form for

**Jubilant Judge
Woods — 1**

JOHNS: I was in "hush mode" for the first few clips this week, so we decided to give some of the 2002 players in the game a slightly more

ER is lit by a spooky neon lightning. The representative is leaning in the sky, illuminating dark clouds that aren't normally visible. Topped off with a spiky lightning sound effect, a fall of atmosphere has been added at no much-increased expense. *Shore*



*These figures are based on the 1990 survey. The 1990 survey was the first to include a question about the use of the Internet for business purposes.



¹⁸ I refer readers to my monograph (B) regarding how we generally believe that a person who has been wronged is different from other persons.



†Supplemental material for this article is available at www.jci.org.



to flag on the very first stone in the game. These are beginning to complement the Spootyland backgrounds nicely. Before I started populating Spootyland I had to make a lot of monsters that I needed. This involved me scrolling slowly through the map and piling down ideas when they came to me. This bit is limited to a total number of monster animations though. The average monster normally has a walk left sequence, a walk right sequence and a static animation. So when you have four static animations for left, four for right and one for static, it's not too bad. But when the monster is a big one going two or three sprites per animation frame, those numbers double or triple. This is the sort of thing I consider when compiling the monster sprite books.

Yippee! I'm coding the presentation at last, and I've only been waiting a year to do it

Completed version of Mayhem is a bundle of game sound effects. John's been working on it for. These include lightning, acid rain, level complete SFX when your monsters count up, game over and a time for sound effect that will really grab your attention. The acid bonus effect will get higher as Mayhem slides over the frozen ice for longer (and the points get bigger).

WEEK 2

JOHN: Well, only a few weeks to go. I thought it was time to include Mayhem's death music. This basically makes Mayhem stop whatever he's doing upon contact with a monster and fall off screen complete with a suitable "ouch" sound effect. This makes the game feel a lot less like a demo as you now have to be careful not to let his monster. One thing we have noticed though is that the game doesn't do

this, especially when changing around at full speed. So I coded a half-life facility which gives Mayhem two chances per life. If he has lost half his life, his lives flash in the status area so that you know (aren't we kind?).

The half-life facility gives Mayhem another bonus level to collect (i.e. a half life coin, wow). This is represented by a blue heart, with a red heart representing an extra life and a rainbow heart representing a continue.

STEVE: The spiky monsters from last week are now happily populating Spootyland. Next on the road to a

completed version of Mayhem is a bundle of game sound effects. John's been working on it for. These include lightning, acid rain, level complete SFX when your monsters count up, game over and a time for sound effect that will really grab your attention. The acid bonus effect will get higher as Mayhem slides over the frozen ice for longer (and the points get bigger).



This man can't drink teenage urine.

populated. As with Spootyland last things first, a monster list followed by a monster sprite book. Then John creates some monster patterns that make the monsters walk, run, fly, shoot, jump and swim (amongst other things).

MAYHEM REVIEWED

Next month your fan-loving CP review team will be giving Mayhem in Thunderland a right going over. At the release of this game is such a big event, we'll all be chipping in our opinions to bring you the best dose of the perspective Mario-bashing. Some-praising/splashing delight. We'll also show good as we go to you'll be seeing another demo from later in the game, a demo you must have seen anywhere else at all over, no matter how much they might have complained about it. Huzzah! Huzzah!



There are very few friendly monsters in the game, only Time Sources in fact.



'It's the best, deep, deep, yep!' said Mayhem. 'Ships, but I've got some sticky boats.' said Steve.



Just these spiky monsters at all costs. Thank you and you'll love it.



STEVE: Now John has given me the Game Over screen! I hear you say. This is when Mayhem drops off the last version of each level into a cave. In the cave is his bestest bubble. This bubble, Mayhem must get. The bubble says of mayhem that he has collected from the monsters. When Mayhem returns to the level, it's bright and sunny with happy monsters. Mayhem must then collect over the frozen ice. That all his bonuses are added to his score and the next level loads.

Once Mayhem has lost all his lives the Game Over screen appears and asks whether you want to continue the game (if you have any continues that is). With all these sequences reaching completion, the game really has come together in the last month. It's turning out better than we could have hoped when it was for our last game week.

STEVE: Now John has given me the Thunderland monster patterns with the monster editor. I can't get monster mapping. Thunderland has a lot of slopes, especially in the tunnel section, so we have put in a lot of different slope movements for the monsters. It's a bit hard.



Looks a lot like a scene from a celebrity square dance! I'm not sure! There's with the bubble.

Meet **Whee Monster**, Mayhem's first friend and the shape who you deliver the magic door to.



This is collected on the next levels by bouncing on the rattling monsters.



With some practice, you have collected enough magic to start for me to collect enough contributions. I can see when it's a better time to start.

When you can move on to the happy level.



level to appear in the first game the monsters for the level have to be especially steep, as with the map. The map tests out every bit of the types of movement you will need for the whole game like walking, changing, jumping and falling through platforms. The monsters for this level don't have options on their backs to push (which are on later levels) and they don't shoot anywhere near as many bullets, making them easier to get past. Also I think a nice range of items to collect would be nice, just to give the player a taste of things to come, and to want more and more as it then is dependent on it.

These little doors are called portals.



Shooting the bullet makes the level a bit more difficult.

responsible for the design of Commodore Format, no less. Next we create the story and introduce the player to the game and then add these into each level. Once all this has been done, the game is finished.

STEVE: Now the last major thing to do for the game is music. We need tunes for the title screen, level complete, game complete, intro and all the background music for the levels. This is quite a big task and I need a lot of inspiration for all that, but I

When Mayhem returns to the level, it's bright and sunny with happy monsters

WEEK 4

JOHN: We're approaching the final stages of the game now, which mainly involves coordinating the background maps with the monster maps. We then have to playtest them, checking that they coincide with each other all the way through each level - an awful and messy. This is a really time consuming and will probably take the rest of week or so to complete. It can prove great fun though as I'm not programming anymore, but actually playing the game all day (this time).

Once that's done, we take a trip to Miles to physically duplicate each cassette and disk. There are three 'masters' of the game, which we test and approve (if everything goes well). We then have to design the advertisement. This will be done with the aid of only one person, who is

have a few good tunes already on disk. These tunes will be adjusted, with lots of bits being added, but the title music will be started from scratch (I've got a really good idea for that). The game complete and intro music are nearly done as they've been worked on over several months and despite needing a little more work it looks like the whole lot will be complete in time for the deadline we've set ourselves.

While John and I are working all hours of the day and night trying to finish the game, found out Andy Roberts is playing the latest version to death. Which is good because the released version shouldn't have any bugs. But, this means what Andy finds bugs they've got to be corrected. It's not enough trying to squeeze all

the work we have already into the hours of the day without Andy giving us more to do. But when it comes down to it, that is the way it has to be done to produce a game of this quality, and a game that we will be proud to release.



NEXT MUM

Yes, we know this is the last instalment, but we're still here next month! We're back to answer all the questions that you may want to ask about MMA. So if you've got a question to ask and haven't yet, write to: **NextMum, Commodore Format, 90 Monmouth Street, South, Avon, BA1 2BW.**



Speed is not the key. The red hearts aren't balloons, but the levels.



Meanwhile, underground, a Guard monster guards a little cave with a bloody table.



These small sticky platforms for the left can be passed through by putting them in the pockets.

MAYHEM IN MONSTERLAND WAS CREATED WITH HELP FROM THE FOLLOWING:

Mum & Dad's financial backing
Terry's and Orel's moral support
Andy Roberts extensive playtesting
Two C64s, one C128, one FDS, three monitors, one TV, two disk drives, two Action Replay cartridges, one Power cartridge, four

psychics, and one controller.
Two sprite editors, two character editors, one character/map-checker, five map editors, five monster editors, one music and SFX editor.
Five cassettes
207 floppy disks (1)
Copies amounts of Mongoose Super, BionicWarrior, TNT and 6
Late nights with House of Pain, the Cube and selected House/Glance music