

Applied Hypergeometry

Introduction

Maureen Kirkland, professor for mathematics, suddenly dropped dead during her daily walk in the park. During the autopsy it is discovered that large chunks of her brain are missing. The Agents are sent to investigate the circumstances of her death and if anything Unnatural is going on.

Background

During her sabbatical leave Prof. Kirkland worked as a guest researcher at **CogniTek**, a secretive R&D company. CogniTek researches methods for *neuro-cognitive warfare* for the US military. Kirkland developed an algorithm, based on earlier CogniTek research. When a subject executes the computation in their head, they are thrown into an infinite loop and become catatonic. Kirkland was unaware that CogniTek's "research" was actually the formalization of a hypergeometric ritual.

The first test subject for the algorithm was CogniTek employee **Matias Cardona**. The algorithm worked better than expected and it took multiple days, until CogniTek successfully brought Cardona back from his catatonic state. While Cardona was in this state he communed with Tsathoggua. He gained insight into the Unnatural and hypergeometry, but at a severe cost to his sanity.

After he was brought back from his catatonia, Cardona's behavior became increasingly erratic and even violent. This prompted CogniTek to lock him up inside their offices, until they have made a decision on what to do next. Cardona immediately started planning his escape and is now using his newly acquired hypergeometric powers to influence and manipulate the CogniTek staff.

In the meantime Kirkland began working on variations of her algorithm. She felt guilty for what happened to Cardona and hoped that a different algorithm could somehow restore his sanity. Unfortunately, her research only resulted in another flawed ritual, which killed her when she found it.

Investigating Kirklands Death

Reading the autopsy report reveals that Kirkland somehow lost almost 75% of her brain matter. There are no signs of surgical intervention, it's like it vanished from one moment to the next (0/1 **SAN** from the Unnatural).

Should the Agents look up Kirkland on the web or other public sources, they can find the following:

- She was professor of mathematics and specialized in dynamical systems.
- She has worked on joint research projects with biologists and has multiple publications in computational neuroscience journals.
- She taught no classes last semester, since she was on sabbatical leave until last week.

They can also learn more by talking to Kirklands PhD student, **Travis Wiley**:

- Kirkland takes a walk every day. She uses this time to think about her latest work, she has her best ideas while out in nature.
- Kirkland spent her sabbatical at R&D company CogniTek. Wiley doesn't know what she did there, she was very secretive.
- She seemed unusually worried and distracted, ever since she came back.

Searching Kirklands office yields additional clues:

- Books and research papers on computational neuroscience.
- A draft for a paper, titled *Adversarial Algorithms - A method for Denial-of-service attacks on the human brain*.

The Paper

This paper details the algorithm that Kirkland developed. The Agents can learn that the algorithm supposedly shuts down the cognitive capabilities of anyone who performs the computations. Matias Cardona is listed as co-author, with an @cognitek.com email address. Notes in the margins reveal that Kirkland was working on a new algorithm, to “alleviate unexpected side effects”.

Mechanics for the algorithm are provided in the stat blocks section.

CogniTek

Public information about CogniTek is scarce, but **Accounting** or **Bureaucracy** can reveal the following:

- CogniTek is a subsidiary of the holding company TomorrowTech, which in turn is owned by March Technologies.
- Some of their funding comes from a DARPA grant for a project about neuro-cognitive warfare.

The Employees

CogniTek employs less than 30 people. The most important ones are listed here:

- **Marissa Sampson**, CEO and head of research. She tries to shield her employees and tries to prevent the Agents from learning about Cardona.
- **Matias Cardona**, neuroscientist. He is imprisoned in the basement and plotting his escape. He uses hypergeometry to influence and torture the other staff.
- **Gordon Mitsuki**, electrical engineer and the main target for Cardona's manipulations. The Agents can observe him behaving strangely, e.g. stealing keys or one of the weapon prototypes.
- **Stephanie Hickman**, neuroscientist. She and Cardona had a secret affair. She is worried about him and might approach the Agents, if she thinks that they can help.

Most of the employees are unwilling to talk to the Agents, or at least hesitant. Sampson has instructed them to keep their mouths shut. With **HUMINT** it is possible to detect that they are anxious and trying to hide something.

When asked about Kirkland's research, Sampson claims that it was interesting but ultimately unfruitful. Agents who have read the paper know that this is a lie. When Sampson is told that Kirkland has died, she is genuinely shocked. She has clinged to the hope that Cardona can still be saved.

The Offices

To enter the CogniTek offices the Agents need a warrant or have to convince Sampson that it is in her best interest to let them enter (using **Law** or **Persuade**). Breaking in at night is also an option, but CogniTek has an excellent security system, including an armed guard at night.

The ground floor of the building contains the office rooms. The basement contains a large bio-chemical laboratory, an electronics workshop and a boiler room. The boiler has been converted to a makeshift prison cell for Cardona.

Searching the offices uncovers paperwork about the project that Kirkland was assigned to. While most of the research at CogniTek is mundane in nature, this specific project was based on descriptions of hypergeometric rituals. These descriptions were apparently in the possession of March Technologies before they ended up at CogniTek.

CogniTek has some prototypes for neuro-cognitive "weapons". They might come into play should the Agents assault the place, or when Mitsuki finally tries to free Cardona. These prototypes include:

- Nootropic drugs, injectable or in the form of pills
- An electromagnetic pulse gun.
- Strobe lights that can induce epileptic seizures.

Mechanics for these weapons can be found in the stats block section.

Events

Due to Cardona's hypergeometric powers, the Agents are likely witnesses to strange events at the CogniTek offices or can even become victims themselves:

- Gordon Mitsuki suddenly becomes unresponsive while talking to the Agents, then he breaks down crying. He was sent a vision in which he violently killed his own family. (0/1 **SAN** from helplessness)
- Another CogniTek employee stabs herself multiple times with a kitchen knife. It was actually Cardona, who switched into her body with the Exchange Personalities ritual. (0/1D4 **SAN** from violence)
- An Agent receives a vision of themselves fleeing into the basement of the CogniTek building while being chased by a giant toad-like creature with bat wings. (0/1D4 **SAN** from the Unnatural)
- An Agent finds that they can no longer recall an important event in their life, like their wedding day, the birth of their child, etc. (0/1 **SAN** from helplessness)

If he gets the chance, Cardona might even try to have the Agents help him. He promises to teach them a ritual or kill one of their enemies, if they let him go.

Resolution

It is only a matter of time before Cardona escapes his imprisonment at CogniTek. Should he succeed he could become a real menace. He starts recruiting people to his cult of Tsathoggua. His ultimate goal is to awaken the Great Old One from his torpor. It is better that the Agents deal with him sooner rather than later.

It is up to the Agents if they also want to shut down CogniTek and their research into the Unnatural. But any attack on CogniTek is also an attack on March Technologies. The Handler decides what March Tech's response would be.

Stat Blocks

NPCs

Matias Cardona

Acolyte of Tsathoggua

STR 10 CON 10 DEX 10 INT 14 POW 12 CHA 12

HP 10 WP 24 SAN 30 BREAKING POINT 18

SKILLS: Alertness 20%, Athletics 60%, Dodge 40%, Unarmed Combat 40%, Unnatural 40%

ATTACKS: Unarmed 40%, 1D4-1

DISORDERS: Intermittent Explosive Disorder, Obsession (Hypergeometry)

RITUALS: Send Vision, Obscure Memory, Exchange Personalities, others at the Handler's discretion

MARK OF TSATHOGGUA: A never-healing putrid wound on Cardona's chest marks him as a chosen one of Tsathoggua. Bearers of this mark have double the amount of WP than usual and also recover WP much faster (2D6 instead of 1D6 for a restful night of sleep).

Marisa Sampson

CEO, in over her head

STR 10 CON 10 DEX 10 INT 15 POW 14 CHA 10

HP 10 WP 14 SAN 70 BREAKING POINT 56

SKILLS: Alertness 20%, Persuade 50%, HUMINT 40%

ATTACKS: Unarmed 40%, 1D4-1

Gordon Mitsuki

Cardona's chosen victim

STR 12 CON 12 DEX 10 INT 13 POW 8 CHA 10

HP 12 WP 8 SAN 35 BREAKING POINT 32

SKILLS: Alertness 20%, Craft (Electronics/Microelectronics) 60%, Firearms 20%, Melee weapons 30%, Unarmed 40%

ATTACKS: Unarmed 40%, 1D4-1

Stephanie Hickman

Concerned lover

STR 10 CON 10 DEX 10 INT 14 POW 10 CHA 14

HP 10 WP 10 SAN 50 BREAKING POINT 40

SKILLS: Alertness 20%, Science (Neuroscience) 60%, Unarmed 40%

ATTACKS: Unarmed 40%, 1D4-1

Rituals

Kirkland's Algorithm

The algorithm is not a ritual in the classical sense, there are no SAN costs for learning it. Operators with **Computer Science** or **Science (Mathematics)** above base can execute the algorithm by hand without a roll. Everyone else has to make an **INTx5** roll.

Successfully executing the algorithm immediately puts the operator into a catatonic state. Each day in this state costs the operator 1/1D10 **SAN**, but they gain the same amount in **Unnatural**. On a fumble they additionally learn a ritual of the Handlers choice.

The catatonia only ends when a seizure is induced in the operator, e.g. through the use of drugs or electroshocks.

Send Vision

Complex ritual. Study time: *days*; 1D6 SAN. Activation: *minutes*. 6 WP, 1D4 SAN.

The operator quietly chants an invocation while walking in a circle. Then, the operator visualizes a short scene, not longer than ten seconds, and thinks of a target. If that target is within 30 meters range, they receive a vision, depicting the exact scene that the operator visualized. During this time they are unable to do anything, like they are in a trance. Being the target of this ritual costs 1/1D4 SAN.

The operator can use this ritual to send the target messages, drive them insane or simply stun them for the duration of the vision.

Neuro-cognitive weapon prototypes

Nootropic drugs

These drugs boost cognitive capabilities. The substances that CogniTek has developed have stronger effects than Adderall, Ritalin or other commercially available drugs. However, there is also an increased risk of side effects. If an Agent consumes such a substance they gain a +20% bonus on all skill checks that require cognitive capabilities. This effect lasts 1D4 hours. The Agent also has to make a **CONx5** roll. On a failure they suffer a negative side effect and lose 1HP and 1D4 WP.

Electromagnetic pulse gun

While it looks like a rifle out of a science fiction movie this weapon does not fire laser beams, but pulses of concentrated microwave energy. The operator has to roll **Firearms**. On a hit, the target suffers from ringing in their ears, nausea, vertigo and other symptoms. All their skill checks are at -20% for the next 1D4 rounds.

Strobe light

It would be easy to mistake this weapon for a handheld spotlight. But instead of spending light the weapon flashes rapidly in certain frequencies, when turned on. These flashes can cause epileptic seizures. The strobe light has to be aimed in the general direction of the target, with a **Firearms** roll at +40%. On a success the target is allowed a **CONx5** roll at -40%. If they fail they suffer from seizures and are stunned for 1D4 rounds. This weapon only works in low-light situations.