SECRET PASSAGE TO CHAOS : DASHIELL HAMMETT'S *THE DAIN CURSE*

In *The Maltese Falcon* (1931), Sam Spade tells Brigid a story that clearly fascinates him: a prosperous businessman from Tacoma named Flitcraft disappeared, deserting his wife and children. When Spade finally found him in Spokane, the life he had made for himself in the new place was exactly the same as the one he had left behind. The man explained that ever since the day he was almost hit by a beam as he was walking near a building site, he had been acutely aware of the fact that all men were under a death sentence, and that he himself lived only because fate, or fortune, had so far spared him. He had resolved to readjust his existence to this new awareness, and so he had broken loose from his old life to start a new one afresh. At that point, Spade notices with amusement, he had started to reproduce the pattern of his previous life point by point, without realizing it however: "I don't think he ever knew he had settled back naturally into the same groove he had jumped off in Tacoma" (430). This anecdote illustrates the dialectics between the "groove" of order and the "jump" of disorder that contemporary science has labelled deterministic chaos, the manifestations of which I propose to study in another text by Hammett, *The Dain Curse* (1928).

Being a mystery story, *The Dain Curse* rests on the tension between the sequence of the crime as masterminded by the friend of the detective, a writer called Fitzstephan, and that of the detection, the gradual unveiling of the former.

Interestingly, *The* D*ain Curse*, like *The Hound of the Baskervilles* (1901), is a story that exploits a curse as a possible agent of causality: around the central female character, Gabrielle Leggett, three different adventures end with the death of three different would-be culprits, apparently setting her up as the ideal femme fatale while vindicating her claim that she is somewhat damned. The curse frames the narrative as it frames Gabrielle up as the villain.

As in *The Hound,* however, the role of the curse exceeds that of being a convenient red herring: it is *because* the successive Baskervilles believe in the curse that the plot against them is effective. In other words, superstition feeds the plot, and it is to this first feature of the plot as function, iteration, that I will now turn.

Erratic behaviors, feedback loops

The tripartite structure of the narrative ties in with iteration, even if at first sight the subplots read as three independent, self-sufficient, autonomous stories.

Each is endowed with apparently convincing closure, complete with revelation of the culprit: starting with a theft committed at the house of a scientist named Leggett, the first subplots ends with the apparent suicide of Leggett and the accidental death of the culprit, his wife Alice Dain. The second sees Leggett's daughter Gabrielle trying to recover in a "home" which is in fact a sect; her physician is brutally murdered, all clues point to Gabrielle but the real culprit (cult guru Halborn) is unmasked and dies. The third plot repeats Gabrielle's desire to escape the curse, but this time it is her fiancé who is killed, as they are vacationing in Quesada, and while Gabrielle accuses herself of being the victim and executioner of the Dain Curse, the detective exposes his Watson, the detective Fitzstephan, a friend of the family, as the mastermind of the three criminal plots.

This summary is enough to show that the logic organizing the narrated events can be described as retroactive rather than purely chronological (which, to a certain extent, can arguably be said of any given narrative): the result of each action, the "output", is introduced as the "input", the starting point of the following sequence, thus creating a feedback loop.

However the strategy of the overall narrative (and the murderer's) consists in lulling the reader into thinking that there is no such recycling. The pretence of linearity, fostered by each successive closure (punctuated by a confession closely followed by the death of the designated culprit), undermines the detective's (and the reader's) efforts at making sense of the whole. The overall picture gets blurred, and mere sequentiality is perceived as the governing principle of the tangled web of events.

Sensitive dependence on initial conditions: a trajectory à la Dumas

The first section, "The Dains", starts like any other detective story: the anonymous "Continental Op" has been hired by an insurance company to investigate a diamond robbery committed at a Mr Leggett's, a scientist — Leggett had been entrusted with the diamonds to conduct a series of experiences on color. The detective quickly finds a single diamond on the Leggett lawn, and proposes his first deduction: the theft is an "inside job" (199), as the presence of only one stone is ob-viously a red herring, evidence that the culprit just pretended to have lost it in his or her flight. This first hint at the closure of the system echoes a previous similarity, when it is established that one of the two suspects that have been seen watching the Leggett house looks like the detective. Gabrielle, Leggett's daughter, thus remarks: "It might have been you, for all I know" (198). A third connection is established between the world of the Leggetts and that of the detective when the latter finds out that the jeweller had lent his diamonds to Leggett

thanks to the mediation of a writer, Fitzstephan, an acquaintance of his who helped him in the past to solve a case of fraud, a "spook racket" involving a ring of quacks operating in New York. This connection will be confirmed in the second section, when the detective snatches Gabrielle from the clutches of a couple of quacks exploiting the Californians' well-known taste for the occult. They had then "pooled forces" (206) and they will now, which foreshadows their working at cross-purposes.

Soon enough the first plot distances itself from mere theft to take on the proportions of a family tragedy as Leggett is found dead in the immediate vicinity of a confession letter. Metaleptically taking over Fitzstephan's intuition "I have been thinking of Leggett in terms of Dumas," (209) the chapter duly calls itself "the Man From Devil's Island" (232) and devotes itself to the version Leggett gives of his own death and the events leading to it.

In the letter Leggett goes over his own (distant) past. Maurice Pierre de Mayenne (his real name) used to court two sisters, Lily and Alice Dain. Forced to marry Lily, he soon becomes the father of Gabrielle, but realizes that he loves Alice instead and asks for a divorce. His wife refuses and he kills her. He flees to London, but the French justice catches up with him and he is condemned to life imprisonment on Iles du Salut. Vindicating the chapter's title, he escapes five years later with another prisoner, who dies, allowing him to survive by eating his flesh — cannibalism, whether literal or metaphoric, in the form of intertextuality, or the recycling of a given corpus, functions here as the epitome of iteration — before their raft reaches the Venezuelian coast. Our hero builds a new life there until his identity is discovered by a blackmailer. He kills him and establishes himself in San Francisco. But as Leggett writes it himself, "the past was not dead, and there was no unbridgeable chasm between Leggett and Mayenne" (233), for in San Francisco he is found by one of the suspects of the aforementioned robbery, who was sent on his trail by Alice Dain

years before. Mayenne-Leggett gives him the diamonds to pay for his silence (a vindication of the detective's intuition of the theft as an "inside job" 199) but the blackmailer is killed by the second suspect, in revenge for a denunciation to the police years before, which gathers all loose ends, or so it seems. Complex enough ? Well, it is nothing in comparison with what actually took place, and the detective will apply all his skill to confusing issues even further.

Dys-closure

In this pastiche-like confession, the detective discovers a hole: Leggett's claim that he sent for Alice and his daughter clashes with the housekeeper's testimony describing his reaction upon their arrival some ten years before:

> He turned absolutely white, and [the housekeeper] thought he was going to fall down, he shook that bad. (215)

The letter is meant to shield Alice (237), concludes the detective, and the first plot ends with a cascade of accusations/confessions: the detective accuses Alice Dain of the murder of the two "robbers", the two men she had hired to find Mayenne-Leggett, and she accuses Gabrielle of having accidentally killed her mother Lily at age five, thus voicing the Dain Curse:

> "You're her daughter," she cried, "and you're cursed with the same black soul and rotten blood that she and I and all the Dains have had ; and you're cursed with your mother's blood on your hands in babyhood ; and with your twisted mind and the need for drugs that are my gifts to you ; and your life will be black as your mother's and mine were black…" (241)

The evil godmother who initiates the cycle of the curse is immediately punished: she is accidentally killed by Fitzstephan as she tries to escape. Closure ? Not quite. Both the detective and the writer feel uncomfortable, even if symptomatically they disagree about what exactly is wrong:

> "The killing of her sister is plain enough, knowing her character as we now do," he said, "and so are the killing of her husband, the attempt to ruin her niece's life when she was exposed, and even her determination to kill herself on the stairs rather than be caught. But the quiet years in between — where do they fit in ?"
> "It's Leggett's murder that doesn't fit in," I argued. (243)

What will fit in, however, is the use of the curse to keep torturing Gabrielle even after her stepmother, Alice Dain-Leggett, is killed. The dynamic system thus continues to move after the death of the first instigator. The initial value of an iterative mathematic function is called the "germ"; in *The Dain Curse*, the germ is Gabrielle's fear of the curse, and it constantly retroacts on the family system, feeding the general plot: the idea of using Alice Dain's last words (the curse) as the beginning of his own narrative starring Gabrielle (as cursed) will germinate in Fitzstephan's mind.

If, in the realm of fiction, the butterfly effect is not a paradox, far-fetched causality being precisely the stuff of story-telling à la Dumas, as exemplified in Leggett's eccentric, sometimes erratic trajectory (when he literally drifts along on a raft), in the realm of science, sensitive dependence on initial conditions accounts for an apparent contradiction, the problematic coexistence of unpredictability and determinism in a chaotic system. For stability is threatened precisely by extreme

cohesion: iteration puts to the test the stability of any given system, as it magnifies considerably tiny, imperceptible diversions from the orbit, or successions of points that graphically represent the evolution of the system. In fiction as in science, some points of crisis are secret passages, or thresholds that open on a radically new behavior.

Such a small factor with an enormous impact is metaphorized by Gabrielle's gesture that, literally, triggered off her appreciation of herself as a monster: when playing with a gun she accidentally pulled the trigger and shot her mother. This (apparent) accident, a point of crisis if ever there was one, set the whole familial system adrift. It forced Leggett to take the blame for the murder and initiated the whirl of chaotic events described above in his letter.

So much for the role of chance in one's destiny. In keeping with the deterministic component of chaos, however, it is interesting to notice that such instability of the system, together with its apparent randomness, is eventually transcended by the revelation that in fact it was Alice Dain who deliberately taught her niece to play with the revolver, using her to get rid of her sister and to pressure Leggett. Remote control, a favorite device with mystery stories' complexifying of motive and opportunity, is here used to point to the fact that the apparently random, the unfathomable, is part of a greater design.

The situation is thus ironic: so-called chaotic disorder sets in precisely because the various movements of the system are tightly knit together, and because retroaction or feedback contributes to creating new ones. To be sure, interconnectedness ensures centrifugal acceleration.

As the detective notices, it is the global quality of the system, its closure, that generates chaos. Consequently, success will depend on his capacity to perceive connections between the three different stories, the passages that lead from one to the other being in themselves generative of turbulence.

Repetition and turbulence

Quasiperiodicity occurs with the coupling together of several incommensurate periodic systems, that is, if the ratio between the two periods, the two cycles, if one will, is not a rational number (a fraction that gives an exact number). In the new quasiperiodic system, the movement will almost, but never quite, repeat itself. Hence the term.

As it happens, quasiperiodicity is often observed when a periodic movement turns into a chaotic movement. If, in theory, turbulence can be reduced to the accumulation of a number of independent periodic movements, in practice, the periods influence each other and provoke disruption, and even a weak periodic force can stimulate a resonance on a dynamic system, and elicit a considerable effect: the system becomes unstable and drifts away from the orbit. The paradigm of modes (superposition of orbits or rhythms), convincing in a Hamiltonian system, works well to explain the *first* movement from smoothness to disruption, but must be corrected by the discovery, made by the theory of chaos, of the fractal dimension of turbulence. Quasiperiodicity is temporary, it is a passage to chaos.

In *The Dain Curse*, the superposition of several "cycles" is highly unstable, and becomes hazardous, not only to the health of all of Gabrielle's friends and associates, as was planned, but also to that of the arch-culprit, Fitzstephan.

Dungeons and dragons

The Dain Curse as a whole resembles a gothic novel, complete with family curses, sects, drug-induced hallucinations, dark sexual drives and motives, secret passages, hidden altars used for human sacrifice, bodies falling from sublime cliffs, etc. If the text exploits to the full the conventions of the genre, it however does so with a deadpan, tongue-in-cheek neutrality that enhances the outlandish character of events rather than it dampens it. A scientifically detached stance is used to account

for fantastic occurrences. Such a combination between the rational and the irrational, beyond the genre's use of the fantastic as a mode, corresponds to contemporary science findings about what could be called, oxymoronically, "cosmic chaos".

In the second section "The Temple", the most gothic of the three, Gabrielle is resting at the Temple of the Holy Grail, run by friends of her late father, the Haldorns. Her physician is alerted by the worsening of her condition and her fiancé Collinson appoints the detective to look after her, "my efficiency offset my brutality, or words to that effect" (249). Events then quickly thicken: in the middle of the detective's first night there, he and the fiancé run across Gabrielle carrying a sword splashed with blood, and she leads them to the physician, lying dead by an altar, as though he had been the victim of a sacrifice.

Just as the first sequence had ended with the discovery and elimination of the culprit (Alice Dain), in the same way the second sequence stops with the neutralization of the instigator of the murder, quack-turned-fanatic Joseph Haldorn. In love with Gabrielle, and driven insane by his impersonation of God, he had used the sect's influence on Gabrielle's maid to persuade her to kill the doctor, and the detective intervenes just in time to prevent him from sacrificing his own wife Aaronia, the only obstacle that remains between him and Gabrielle.

In keeping with the retroactive dynamics of the overall system, the outcome of the first section is processed by the second, fueling the machinery of the plot. Again, the germ that is re-injected in Gabrielle's system, as it were, is the curse :

> I don't know how far he [Haldorn] had worked on her, nor even how he had worked on her, but I supposed he was sewing her up by using his hocus-pocus against her fear of the Dain curse. (276)

Adding his own design, his own periodic cycle, to the curse, Haldorn unwittingly modifies the rhythm of the general plot, in which he takes part, being a mere cog in Fitzstephan's machine (his is a plot-within-the-plot, which reproduces on a smaller scale the writer's exploiting of the curse for his own purposes). The curse thus stands in the economy of the system as the original, truly periodic system (were it true, a curse would ideally repeat itself) that is set off course by the superimposition of other, less perfectly circular, patterns. The fictitious, perfect, Platonic curse (the curse in which Gabrielle believes) is modified by the various uses the other characters make of it. In exploiting the curse, they actualize it and create a fresh system that quickly gets out of hand. This is how iteration and quasiperiodicity can provide a convincing rendering of the way superstition works.

Besides quasiperiodicity as such, another way to describe the passage to chaos is period-doubling: within one dynamic system, this time, as opposed to the coupling of two systems, the evolution of one parameter can create the oscillation between two states of the system; these two states in turn bifurcate into four, etc. After an exponential acceleration in the succession of the states, the system will simply refuse to return to any of the states. Oscillation is thus another passage leading to complex, unpredictable behavior. The unpredictability of madness, for instance, a central motif of *The Dain Curse*, can be attributed to oscillation: according to Aaronia Haldorn, her husband's insanity was caused by intensive use of hypnosis. Joseph had gotten into the habit of mesmerizing himself; little by little he had become addicted to this state of trance and it had become harder and harder for him to extricate himself from it:

> Going around hypnotized all the time, what brains he had — not a lot to start with, she says — had become completely scrambled. (276)

Joseph's madness is thus the result of period-doubling, the faster and faster alternation of two patterns, wake and hypnosis, which, upon reaching a critical point, ended up in total breakdown, in mental turbulence. More generally, the sect's disturbed state is ironically represented in its own artefacts, the special effect used to arouse awe in the credulous members; the ghost that regularly visits their rooms is a mise en abyme of turbulence:

> Not more than three feet away, there in the black room, a pale bright thing like a body, but not like flesh, stood writhing before me. (…) Its feet — it had feet, but I don't know what their shape was. They had no shape, just as the thing's legs and torso, arms and hands, head and face, had no shape, no fixed form. They whirled, swelling and contracting, stretching and shrinking, not greatly, but without pause. (265)

In his drugged state, the detective even uses a simile that compares the ghost to "tidal water" (265). The "thing" challenges logic: "the thing that had no solidity had weight" (266). It is emphatically impossible to grasp ("I got hold of the thing and I didn't"). Interestingly enough, the special effect that creates the illusion consists in projecting a luminous image on a stream of vapour emitted by a device hidden in the secret network of piping the Haldorns have added to the house, which corresponds to a crude version of the hologram, a technology that relies on fractal representation.

In the same way turbulence has the capacity to fragment itself into smaller and smaller versions of itself; the self-similarity that pervades *The Dain Curse* is also what theoreticians of chaos noticed when they tried to give a topological representation of turbulence and discovered "strange attractors".

Detection and topology

In the first section, Fitzstephan describes Leggett as a man who is, just like him, attracted to things and people that are out of the ordinary and, among a gallery of weird characters and eccentrics, he refers to a mathematician:

> His friends — no, he hasn't any — his choice companions are those who have the most outlandish ideas to offer: Marquard and his insane figures that are not figures, but the boundaries of areas in space that are the figures (208)

Mathematician Marquard, whose research is reminiscent of Poincaré's invention of topology (and intuition of determinist chaos), is processed by the reader as a hidden clue pointing to secret, paradoxical organization.

Topology is the study of continuity; it examines the properties of forms that are not modified by continuous and reversible transformations: forms might stretch and assume an aspect altogether other, their properties remain the same. Conversely, a hole is always there, whatever shape is assumed to try to cover it up. Intersections also remain intersections.

The job of the detective is thus clearly topological: he must ignore the metamorphosis of the various forms assumed by the (representation of the) system to concentrate on holes and intersections that never change and hold true, if hidden, meaning. He looks for silences and coincidences. In that account, the solution of the last problem (Eric's death in the opening of the third section, "Quesada") can only be found through going over the Leggett case and the temple business again, concentrating his efforts on the passage that connects them. Topologically, his task consists in showing that the three cases are in fact one. The first case has been stretched to produce an excrescence that constitutes the second case,

which in turn includes another outgrowth, the third case: Gabrielle's husband is killed, Gabrielle is kidnapped, and Mrs Cotton, the mistress of the kidnapper that gave him an alibi for the murder, is found dead, with a confession letter accusing Whidden, her lover, and revealing the location of the hiding place where Gabrielle is held prisoner. Upon reaching the place by boat, the detective, Fitzstephan, and the police exchange shots with Whidden, killing him before he can talk. Crime scenes, temporal periods and designated culprits might appear to be heterogeneous, the detective is convinced that he is facing the same dynamic system:

> "Where does that layout fit in with the Temple racket ?
> "Are you sure," Fitzsterphan asked, "that you're right in thinking there must be a connexion ?"
>
> "Yeah. Gabrielle's father, step-mother, physician, and husband have been slaughtered in less than a handful of weeks — all the people closest to her. That's enough to tie it all together for me. If you want more links, I can point them out to you. Upton and Rupert [the men hired by Alice Dain to find Leggett] were the apparent instigators of the first trouble, and got killed. Haldorn of the second, and got killed. Mrs Leggett killed her husband; Cotton apparently killed his wife; and Haldorn would have killed his if I hadn't blocked him. Gabrielle, as a child, was made to kill her mother; Gabrielle's maid was made to kill Riese [Gabrielle's physician] and nearly me. Leggett left behind him a statement explaining — not altogether satisfactorily — everything, and was killed. So did and was Mrs Cotton [the mistress of Whidden, Gabrielle's kidnapper]. Call any of

> these pairs coincidences. Call any couple of pairs coincidences. You'll still have enough left to point at somebody who's got a system he likes, and sticks to it." (321)

It is precisely repetition in the form of iteration coupled with period-doubling ("pairs and couple of pairs of coincidences") that marks a chaotic system: disorder disguises a secret order.

To determine whether the three sub-plots involving Gabrielle belong to a single system (albeit a chaotic one) it is necessary (for the detective rather than for the reader, who of course is placed in front of a narrative that has been unified *de facto* by the narrating gesture) to assess the existence of what can be termed the "attractor", a form that would attract to itself the various trajectories and that would turn them, from arbitrary, random and disconnected curves, into deterministic, secretely organized loops.

Now if one chooses to represent a system graphically, various degrees of organization will appear clearly: periodic systems (real cycles) will draw a loop, whereas random systems will show no attractor at all. Quasiperiodic systems topologically settle on a form that looks like a donut, the result of the combination of various periods, or loops. As was mentioned above, such a form is found in systems that are unstable, in other words, it signals turbulence, systems on their way towards chaos; in fact, the donut is a transitory and transitional form paving the way to the more blurred form chaos assumes, that of strange attractors, a form that, after the third period-doubling, hesitates between a two-dimensional and a three-dimensional donut. A third bifurcation thus endows the system with a fractal (half-way between surface and volume) dimension.

Thus, in the long run, if observed long enough, a chaotic system forms a pattern, it settles around a strange attractor, a form that displays a fractal structure.

Curses and strange attractors

Order in chaos is barely perceptible at first: it takes all the ingenuity of the detective to see that what seems to be total randomness is in fact determininistic. A trajectory that diverges from the orbit might be caught by an attractor that is not yet visible. A good example of this "wild trajectory", an apparently eccentric behavior the rationale of which is still hidden, is placed at a strategic situation, at the end of the second section, unexpectedly shooting out from the calm steadiness of the detective's Great Explanation scene. It corresponds to Fitzstephan's totally disproportionate reaction upon hearing the news of Gabrielle's marriage:

> …"And, as far as guarding her is necessary, her husband ought to be able to do that."
> "Her what ?"
> "Husband."
> Fitzstephan thumped his stein down on the table so that beer sloshed over the sides.
> "Now there you are," he said accusingly. "You didn't tell me anything about that." (280)

His outré, accidental gesture, upsetting the glasses, causing the beer to overflow, crying out in dismay concealed as intense surprise, metaphorizes the radical measures (murder and kidnapping) he will be forced to take in the third section to keep Gabrielle for himself, to get close to the attractor, to remain, so to speak, in the loop. Alice Dain's hatred and Haldorn's madness were, though portents of instability, single-minded enough. Fitzstephan's motive and action, on the contrary, will go in all directions in the third section, as he is forced to rely on further remote control to attain his ends. His plan will then seem to go awry, but the Continental Op will eventually be able to make out the strange attractor of the system that has apparently jumped off the groove.

The third adventure shows us Gabrielle now married with Eric. As they are honeymooning in the mountain, in Quesada, the Continental Op receives a telegram from Eric, calling for help. On his way to their house, the detective finds Eric's body, lying at the bottom of the cliff. Gabrielle has disappeared from the house, and the detective is forced to tell the whole story when he makes his report to the sheriff:

> "I've never thought we had an answer to either of the two mix-ups she's been in. And not knowing the answer, how could you tell what to expect ?"… "There's the curse, though," he said.
> "Yeah," I agreed, studying his indefinite face, still trying to figure him out. "But the trouble with it is it's worked out too well, too regularly. It's the first one I ever ran across that did." (289)

The detective's discarding of the curse as a pat explanation and convenient governing principle is interesting: he never argues against superstition, nor does he call for a rational explanation, but he concentrates instead on the form of the system he has been confronted with and concludes that the periodic quality of the system pokes holes in the curse hypothesis: the loop he is observing is too good an imitation of what a curse would do, for even a "real" curse, when confronted to reality, a non-Hamiltonian world, would be modified. Friction would rub against fiction.

Similarly, he argues against Gabrielle's perception of herself as a "degenerate" (title of chapter 19) by showing her the iterative functioning of the supposed curse. Gabrielle thinks *she* is the attractor, the hidden point that attracts all the trajectories towards a deadly vortex:

> "But can't there be — aren't there people who are so throughly — fundamentally — evil that they poison — bring out the worst in — everybody they touch ?" (333)

The marks of the curse that Gabrielle sees on her own body, her so-called "animal" looks (her tiny forehead, her pointed ears without lobes, her pointed chin and pointed teeth, 330), her incapacity to think, and the fact that men are fatally and pathologically attracted to her, all her arguments are swept aside by the detective. He shows her instead that she has inherited a remarkable mental balance from her father; as to her sex appeal, it seems excessive when seen against her own lack of appetite, due to drug addiction.

In fact, he shows her that superstition is retroactive, feeding on itself to be actualized: the donut-like attractor that results from the juxtaposition of her vision of the curse and Fitzstephan's exploitation of it complexifies the quasiperiodicity inherent in detective fiction.

A Whodonut

Any detective story can be described as the coupling of two periodic systems, the trajectory of the criminal and that of the detective —the latter is as close as possible to the former, but can never quite achieve perfect identity with it; hence quasiperiodicity rather than periodicity, especially in the American version of the formula, which involves detective participation in the action (rather than mere reconstruction of it *a posteriori*).

Besides what could be termed "generic quasi-periodicity", *The Dain Curse* unfolds with the tension generated by another coupling, the quasiperiodicity discussed above that results from the interaction between the curse and the criminal exploitation of the belief in the curse (which by the way is almost generic too — it is a particularly apt actualization of the tension between

what actually happened vs. what the criminal wants people to believe has happened).

The coupling of the two quasiperiodic systems, that of Fitzstephan's exploitation of the curse and that of the detective's exposure of his plot, is bound to be highly unstable. Typically, the topological figure that represents the attractor of a quasiperiodic system is a donut, as the inner circle of one "cycle" is combined in a rotating movement with the wider spherical movement of the other. Any mystery novel's action thus moves on the surface of this donut — revolving around a central hole, the "whodonut". A quasiperiodic movement is not stable (which is precisely what will cause the culprit's undoing), it is typically a transition towards chaos, so that the donut, due to cascading period-doubling (and subsequent multiplication of attractors), is a figure that does not last as such but soon fragments itself into a myriad of points that draw a figure that looks like a donut endowed with a fractal dimension (each donut is flanked by its own tinier satellite-donuts revolving around its central hole *ad infinitum*). Such fragmentation however is likely to occur only after a while, after period-doubling has turned acceleration into turbulence and into chaos. And this is precisely what happens in the third section, "Quesada".

Generating period-doubling and consequently turbulence, iteration fuels the third section, "Quesada", as was the case with the previous parts of the narrative. Upon receiving a ransom letter for Gabrielle, who has been kidnapped, Fitzstephan, posing as the friend of the family, confesses he does not understand what is going on: "I don't know whether it's a fresh puzzle or the key to a puzzle" (300). Similarly, seen from the point of view of the instigator of the system, retroaction is also significant; each death increases Gabrielle's value in his eyes, like some kind of devious investment:

> By this time Fitzstephan had hit his stride. He looked on Gabrielle now as his property, bought with the deaths he had caused. Each death had increased her price, her value to him. (368)

As has been seen above, iteration is a means to test a system's stability: in the case of Fitzstephan's scheme, it will prove ironically true, as the ending sees him becoming the helpless victim of his own machinery. Feedback loops have generated turbulence, and a wild trajectory hits Fitzstephan.

As the narrative is closing and Gabrielle is resting in a hotel room while the Continental Op and Fitzstephan are talking, the detective receives the visit of Fink, the special effects accomplice of the Haldorns; he gives the writer a small package, which the latter is forced to accept for fear a refusal might reveal his connection to the Haldorns via Fink. It is a bomb that explodes, reducing Fitzstephan to "a mangled pile of flesh and clothing in the middle of the room" (323).

In this last development, the fractal dimension of the chaotic machinery he had set going is hinted at, as the mastermind becomes nothing more than a victim. Fitzstephan thought he was the all-encompassing consciousness managing the system, while his sphere is but the limited section of a wider system, a system that encompasses *him*, a mere satellite, but that he cannot perceive, his perspective being too local. The multifold dimension of the curse, independently from his exploitation of it, and the ironic implications of this layering, is now visible: one perceives the uncanny similarity of the various crimes' *modus operandi*, and their exploitation of love triangles. In *The Dain Curse* couples split up only to duplicate themselves on another level: to get Mayenne-Leggett, Alice kills his wife, her sister, using her niece as a weapon, to be in turn used by her lover Fitzstephan to get rid of Leggett. Fitzstephan and Aaronia Halborn plot Haldorn's death, while Halborn plans to kill

his wife to live with Gabrielle, which corresponds to the first doubling. Then in "Quesada" Aaronia pairs up with Gabrielle's lawyer in an attempt to divert suspicion, while Whidden, Gabrielle's kidnapper and the man who murdered her husband, is the lover of Mrs Cotton, the marshall's wife and the sheriff's old flame, which functions as a comic subplot. As if in imitation of the masters, unfortunately, she also gets killed to shield Fitzstephan with a phony confession letter, a repetition on a smaller scale of Leggett's original confession. Another example, maybe even more indicative of complexification leading to disorder, is Fitzstephan's misguided use of remote control, of people as relays to achieve his plans: in the first section he uses Alice Dain to introduce Gabrielle to the Haldorns, in the second he uses Haldorn who, falling in love with Gabrielle, decides to pursue his own aim, and it is Fink, Haldorn's employee, a native of Quesada and a relative of Whidden, the murderer of Gabrielle's husband, who decides to kill Fizstephan precisely because he was his accomplice in the Temple murder and he wants things to rest now; the continuation of Fitzstephan's murderous spiral threatens to stir up previous trouble: "Fink knows that if you keep it up you're going to let the truth about the Temple murder, and he'll swing with you. So, scared panicky, he tries to stop you" (361). The extreme cohesion of Fitzstephan's system is precisely what will explode it.

The conclusion to *The Dain Curse* thus presents itself as the exposure of a dynamic system turned chaotic (Fitzstephan's plot), that encompasses and replaces another dynamic but periodical system (the imaginary curse). As the detective gives out the identity of the arch-culprit, his Watson, writer Fitzstephan, he describes unknown trajectories in the phase space of the system. The detective first accounts for a circumstance that seemingly clears Fitzstephan, as has been seen above: the writer was the victim of a bomb that illusionist Fink placed in his hand, implying it was a message from Aaronia Haldorn, who turns out to be Fitzstephan's mistress.

The connection between the writer and the temple explains away all remaining mysteries: Fitzstephan killed Alice Dain in the stairs not by accident but deliberately, he had doctor Riese killed because Riese had seen Fitzstephan and the Haldorns in conference, he hired Whidden in Quesada to kill Eric and to kidnap Gabrielle. He also disposed of Mrs Cotton and Leggett. Gabrielle's confession that he has been courting her provides a motive for the mass assassination.

Ironically, such an explanation does not invalidate the curse, but rather vindicates its existence as Fitzstephan reveals he is a Dain, thus spoiling the Great Detective's moment of triumph:

> I said: "And so ends the Great Dain Curse." He laughed then, as well as he could with one eye and a fraction of a mouth, and said: "Suppose, my boy, I were to tell you I'm a Dain ?" (362)

The faint suggestion of incest metaphorizes the text's self-similarity. Even closure is subjected to infinite regress.

Fractals and Infinite Regress

To the presence of the vicious circle which, as with the Tacoma businessman, governs the history of the Dain family in the form of the curse, a system of horizontal, periodic, and non-chaotic if uncanny repetition, is added another structure of repetition, the fractal or vertical self-similarity of the narrative proper, which reproduces its own behaviour on a smaller scale.

In the narrative system of the *Dain Curse* the part looks like the whole; the successive crimes instigated by Fitzstephan all follow the same complex pattern, and cannot be discarded as coincidences, as has been seen above. The text actually comes close to suggesting that Fizstephan might not actually be

aware of the fact that he is a mere executioner. The evocation of his own madness would seem to point in that direction:

> This sudden hatred of me — for it amounted to that — had grown, I supposed, out of his knowing I thought him insane. He wanted the rest of the world, or at least the dozen who would represent the world on his jury, to think he had been crazy — and did make them think so — but he didn't want me to agree with them. As a sane man who, by pretending to be a lunatic, had done as he pleased and escaped punishment, he had a joke — if you wanted to call it that — on the world. But if he was a lunatic who was ignorant of his craziness, though he was pretending to be a lunatic, then the joke — if you wanted to call it that — was on him. (365)

Such a reversal is fractal in so far as the part (the acting) is similar to the whole (actual madness).

Closer examination of the details of Fitzstephan's plot reveal something like baroque architecture: topography in that account provides an interesting representation of self-similarity, as can be seen for instance in the place where Gabrielle is hidden after her kidnapping, a place that is only accessible by boat:

> Craning our necks, we could see that what we had taken for the shore-line on that side was actually a high, thin, saw-toothed ledge of rock, separated from the cliff at this end by twenty feet of water (…) We went through the opening and turned down behind the saw-tooth ledge. We were in a v-shaped pocket. (317)

A favourite example of fractal theoreticians, the ragged coastline, whose dimension is between surface and volume (the more precisely you measure the coast, the exponentially higher the figure, which becomes potentially infinite if you take into account every single pebble on the shore) is here a literalized metaphor: Gabrielle has been hidden by her kidnapper behind the ledge, and within the "v-shaped pocket", her own hiding place is another recess:

We saw Gabrielle Collinson cowering back in the corner of a narrow-mouthed hole in the rock wall — a long triangular cave whose mouth had been hidden from our view by the slant at which it was set. (318)

In hermeneutic stories even more so than in fiction in general, topography is topological. The potentially infinite dimension of the plot is exhibited spatially, here in the succession of invisible pockets. The fact that their additional dimension is at first sight imperceptible, as the coastline remains smooth, or rather linear, when seen from a distance, makes this secret "depth" the perfect hiding place, reminiscent of the purloined letter. To be sure, the interplay between surface and depth has been exploited by detective fiction, in the wake of Poe's obsession with arabesque.

The fractal dimension of the strange attractor, the graphic representation of a turbulent, chaotic system, is no accident. The retroaction that governs all the character's relationships (for instance when the detective tries to wean Gabrielle off drugs, he says: "Your belief in me is built on mine in you. If mine's unjustified, so is yours," 345) is, in the case of the detective and the writer, coupled with a mirror-like similarity in their activity. An instance of apparently gratuitous verbal fencing sees them comparing each other:

> "Are you — who make your living snooping — sneering at my curiosity about people and my attempts to satisfy it ?"

> "We're different," I said. "I do mine with the object of putting people in jail, and I get paid for it, though not as much as I should."
> "That's not different," he said. "I do mine with the object of putting people in books, and I get paid for it, though not as much as I should." (201)

Again, what looks like "horizontal" similarity turns out to be "vertical", fractal self-similarity. The chaotic movement initiated by Fitzstephan's hubris — his using of Gabrielle's belief in the curse as the "germ" of the narrative function he will iterate on and on — is reproduced on a larger scale by the functioning of the narrative, which in turn encompasses the detective's exposure of the writer…

Isabelle Boof-Vermesse

Bibliography

J. Briggs, & F. D. Peat, Turbulent Mirror, New York, Harper and Row, 1989.

J. Gleick, *Chaos : Making a New Science,* New York, Penguin, 1987.

D. Hammett, *The Dain Curse* (1928) in *Dashiell Hammett : The Four Great Novels,* London, Picador, 1982.

— *The Maltese Falcon* (1931) in *Dashiell Hammett : The Four Great Novels*, London, Picador, 1982.

Pour la science, numéro spécial, « Le Chaos », Janvier 1995.

D. Ruelle, *Hasard et chaos.* Paris, Seuil, coll. Points, 1991.

I. Stewart, *Does God Play Dice ? The New Mathematics of Chaos*, Harmondsworth, Penguin, 1989.