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From time to time antigravity seems to make the news. Recently I read about it twice in the same day. On one page the paper was praising a new technological gadget, the Russian space-suit with an anti-gravity effect, constructed to ease the cosmonaut's return into the earth's atmosphere. On the next page I read reports about a Japanese sect notorious for its poison-gas attacks whose leader is said to have practiced levitation in Tibet. It is curious to see this co-existence of two worlds in the juxtaposition of the latest advance in technology and an archaic technique. Yet both share similiar concerns: both represent methods by which human beings may disengage themselves from this material planet, and both attempt to annihilate the spatial and temporal conditions that have shaped us. Antigravity and levitation are concepts that have been with us since the dawn of history. Phaeton and Icarus epitomise such fantasies, which are also part of halucenogenic and shamanistic experience. But it is only in the nineteenth century that a strange doubling: begins to take place: on the one hand, the Romantics revitalize ancient myths of flight and transcendence; on the other hand, technology advances to such a point that these dreams seem to be on the verge of realization. (Novalis: "Wir *suchen* überall das Unbedingte und *finden* immer nur Dinge.")

Annihilation of material obstacles to communication and transport becomes increasingly important during this period. Railways and new roads, telegraph and telephone, are all means used to obliterate impeding conditions, The visible, tangible side of things is reduced, yet there is penetrating investigation of the material world. Even the human being becomes transparent: the theory of evolution reveals an invisible series of ancestors standing behind present-day *Homo sapiens*; then, some decades later, the discovery of X-rays permits the material inwardness of the body to be penetrated. In short—the nineteenth century witnesses a fundamental process of dematerialization.

The return of anti-gravity fantasies is closely connected with this process. As a starting point, I will take a fairy tale by George MacDonald to show the inherent problems and possibilities of such fantasies. MacDonald

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[46] has been taken seriously as a writer of fantasy, tales and romances, but I think one could shift the emphasis to bring out new aspects—such as images and ideas bearing on scientific and technological paradigms that were then in the process of development and which still exert their sway over us.

In 1864 MacDonald published a story one might call an antigravity fantasy: "The Light Princess." This fairy tale begins with a dual kind of forgetting. A royal couple has been longing for a child and when at last a daughter is born the king forgets to invite his sister to the christening. But he tops this forgetting with a further one: he even forgets that he forgot. The sister-fay then punishes the family by a magic spell which makes the girl weightless—light not only in body but also in spirit. She floats in the air and chuckles all the time, "like a baby-laughter-cloud in the air, exploding continuously" (7). Later, the courtiers use the baby for ball-games and it is proposed that when the members of the court go on an excursion they fly her on strings like a kite. So there's something for the parents to worry about. What, for example, could happen if she were to marry? "Just think! If she were to have children! In the course of a hundred years the air might be as full of floating children as of gossamers in autumn" (14).

In order to ward off this terrible vision (it reminds one of the populated sky in Arthur Conan Doyle's "The Horror of the Heights") two metaphysicians are commissioned to cure the girl and to make her gain weight in more senses than one. For even her laughter, compared in the story to a "musical-box," seems to lack something:

> What it was I find myself unable to describe. I think it was a certain tone, depending upon the possibility of sorrow—*morbidezza* perhaps. She never smiled. (18)

But the Chinese scholars Hum-Drum and Kopy-Keck—one a materialist, the other a "spiritualist"—are bound to fail pitiably. Ultimately the two are interchangeable. "The latter had generally the first word, the former the last" (21). They are interchangeable because both resort to the same type of monocausal explanation. Kopy-Keck thinks the child's soul doesn't fit because it comes from Mercury. Hum-Drum thinks her body doesn't fit and her case shows that the "remarkable combination of the suction and the force-pumps works the wrong way" (23). The materialist therefore prescribes physical torture since death is the best means of restoring balance. The spiritualist commends mental torture which, interestingly enough, consists in an extensive study of all branches of history. (Borges was to develop the theme of complete memory as a kind of torture in his short story "Funes

el **[47]** memorioso.") Kopy Keck's list includes a study of the history of extinct animals—"their natures, their habits, their loves, their hates; their revenges" (22), and one could say that the form which "their revenges" took is Darwinism. Such a total immersion in history amounts to the radical historicism which in 1871 was to come under fire from Nietzsche in his "Vom Nutzen und Nachteil der Historie für das Leben."

Fortunately, the girl's parents prevent the metaphysicians from applying their cures, and they reject their further plans to bury her alive for three years. There is something in her that makes all such projects futile:

> Indeed the most complete knowledge of the laws of nature would have been unserviceable in her case; for it was impossible to classify her. She was a fifth imponderable body, sharing all the other properties of the ponderable. (24)

In other words, the problem of weightlessness cannot be solved by scientific means, just as today we can describe but not explain gravity. The princess's body is the fifth essence, the quintessence which unites all four elements These alchemical terms reveal the nature of the problem: the process involved is both mental and physical. "Imponderable" obviously is a pun referring to "that which it is impossible to understand" as well as to "that which cannot be weighed." Puns are essential to this story and I shall return to them.

The situation changes when a young prince appears and surprises the princess swimming in a lake. Swimming is the girl's sole pleasure since it restores to her a sense of weight. They fall in love—or rather he falls in love and then teaches her how to "fall." But at least she recognises that falling can be a pretty nice thing: Fall is beautiful. Night after night they swim together, but one night she notices that the lake's surface is lowering. Bad auntie interfering again has commanded a serpent to drain the lake and has brought a terrible drought upon the country, an event reminiscent of the creation of waste lands in the Arthurian legends and similar myths where the topographical situation is conditioned by the moral state of things. The only chance of putting an end to the drought is to find a volunteer who will be the plug for the hole through which the lake has drained. Obviously, there is only one person ready to undergo this sacrificial death and that is the prince. The water level rises again until it is up to his neck, and at last the princess really begins to worry about someone else—something completely new in her experience. When the water covers the prince she acts swiftly and drags him out of the hole. Then rain can again fall, and not merely externally: now, for

the first time in her life, she can actually cry tears. And at this same moment **[48]** she (re)gains weight and becomes subject to the laws of gravity like everyone else.

Gravity takes some getting used to, and the princess immediately notices a sensation similiar to that of astronauts re-entering the earth's atmosphere: "I consider it very unpleasant. I feel as if I should be crushed to pieces" (64). And she still has some way to go in this new world of hers; for example, she must learn how to walk:

> "Is this the gravity you used to make so much of?" said she one day to the prince, as he raised her from the floor. "For my part I was a great deal more comfortable without it."
>
> "No, no, that's not it. This is it," replied the prince, as he took her up, and carried her about like a baby, kissing her all the time. "This is gravity." (64-65)

There is a happy ending, of course, and the many descendants of this happy couple will not float up into the skies: "not one of [them] was known . . . to lose the smallest atom of his or her due proportion of gravity" (66).

The psychological interpretation of the story is well-known: it depicts an initiatory process toward maturity, made possible by building a relationship with another person. However, the story can be viewed in another light by relating the psychological level to scientific and technological developments of the nineteenth century. And it seems that MacDonald equally was inspired by these latter factors in creating his fantasies. In *Lilith* the narrator remarks at the beginning of the book that he devoted himself:

> to the physical sciences. It was chiefly the wonder they woke that-drew me. I was constantly seeing, and on the outlook to see, strange analogies, not only between the facts of different sciences of the same order, or between physical and metaphysical facts, but between physical hypotheses and suggestions glimmering out of the metaphysical dreams into which I was in the habit of falling. (1)

Let us then follow these "physical hypotheses" as they are implanted into "The Light Princess."

As we saw above, the prince gives the princess a kiss and then states that this is the real kind of gravity. Such a notion harks back to the ancient Greek concept that bodies exert a mutual attraction. Even Copernicus noted that weight is nothing but a kind of divinely implanted striving by bodies,

as fragments in search of the whole. Newton, however, turns these views of weight into his concept of gravity, basing it on relationships of quantities and **[49]** distances. The same quantitative thinking appears his *Opticks*, which were an eyesore to Goethe. The Romantics in England and Germany were the first generation to insist upon reclaiming qualities and values that had all but disappeared. MacDonald's Romantic heritage links him with this tradition—he finds himself stuck between modernity and a type of cultural criticism that stems from the Romantic movement.

Floating and flying are part of Romantic imagery, A decadent Romantic spirit sought wings with which to evade drab everyday reality, yet the true spirit of transcendence has from time immemorial inspired humanity. While the Romantics were confined to metaphorical light, the engineers and inventors of the late nineteenth century tried to realize these fantasies on a technological level. Though ostensibly practical, such men as Otto Lilienthal, the Wright brothers and other constructors of flying machines worked to serve romantic dreams. All these ambitions point to a changed bodily awareness and anew sense of motion, which had already emerged with the first balloon flights at the end of the eighteenth century, or even with earlier space-travel fantasies.

Man yearns to leave our physical world, the earth, at first in fantasies, then in reality. This is done in space travel, and it may occur in body-free flight. Speed is certainly one way of inducing this flight, and initial reactions to the first railways may point to more than simply fear of the new. Those people who were afraid of becoming insane through speed probably recognised intuitively that for the first time technology made it possible for them to go beyond the simple limitations of body and environment. The nineteenth century is also the century that discovered intoxication in its manifold manifestations—steam engines, transport, speed, drugs, magic; roundabouts or a poetry propagating the "dérèglement des sens" (Rimbaud). A sense of vertigo, whether induced by by flight, motion or ecstasy, is the hallmark of modernity. It signals the dissolution of a familiar world with its space-time parameters, but also affects community, tradition and identity. On the other hand, flight and fall mutually correspond. In Baudelaire's famous poem "L'Albatross" we witness the king of the air stumbling and faltering upon entering the earthly realm and facing ridicule by onlookers. Of course, he himself is the romantic poet who, just like our princess, is unable to cope with gravity. And even the fall has to be learned. One could also cite those epileptics in Dostoyevsky who suffer from falling fits. All such examples

illustrate the lost art of balance, indicating a loss within the personality of the individual and his or her relationship to the world. The princess's **[50]** weightlessness is also seen as a form of loss. This, at least, is how the prince views it:

> What could a prince do with a princess that had lost her gravity? Who could tell what she might lose next? She might lose her visibility, or her tangibility; or, in short, the power of making impressions upon the radical sensorium; so that he should never be able to tell whether she was dead or alive. (29)

There is then even the danger of a complete disappearance. Invisibility is the theme of H.G. Wells's famous novel, *The Invisible Man* (1897), in which the protagonist uses scientific means to make himself invisible, but incurs at the same time the risk of a complete loss of existence. This potential loss is counteracted by fantasies of omnipotence, for the invisible man not only breaks human laws but strives for a terrorist dictatorship over the whole world (thus reaching for the most powerful invisibility, that of God).

At about the same time as MacDonald was writing his strange story about floating and weightlessness, scientists began to study the phenonema of vertigo and related diseases. Vertigo can be described as an illusory movement of the organism which experiences unmotivated tumbling, swinging or floating. The brain is unable to interpret gravity in an adequate way and thus loses control over muscular movements. In Paris, Prosper Menière, a doctor for the deaf and dumb, discovered in 1861 the organ responsible for the interpretation of the power of gravity which endows the human being with the ability to move in space and time. This organ, the *vestibularium*, he located in the ear. It is somewhat like a three-dimensional compass which co-ordinates spatial and temporal patterns of experience. With its help our upright posture and walking are co-ordinated. Our sense of balance results from our faculty to overcome gravity. Jeannot Simmen has pointed out that the emergence of modem abstract art is somehow related to the disturbance of this faculty around the mid-nineteenth century. It is at about this time that images of matter as a whirlpool appear, together with the reports of cases of vertigo. Both are symptoms of a disturbed order at the core of perceptual experience. In Poe's "The Fall of the House of Usher," the character Roderick is able to produce one of the earliest abstract paintings as a result of sensory deprivation while underground. Other Poe stories such as "MS Found in a Bottle" and "A Descent into the Maelstrom" also explore this new type of experience. Floating states where gravity seems to have been

overcome become depicted frequently in paintings—as in Courbet's *Le Désespéré ou le Fou de Peur,* or Seurat's *Le Cirque* (1891), with its **[51]** repercussions in Kafka's story "On the Gallery." One could also mention Degas's *La La au Cirque Fernàndo* (1867) and, later, Magritte's *Le Château des Pyrénées* (1959) (see Shlain 338-). Manet was probably the first to concentrate, from 1862 onwards, on circus acrobats.

Between 1860 and 1895 there occurred the decisive development of a popular vehicle of transport which necessitated a new type of bodily movement charcterized by dynamic stability: the bicycle. What has been called "cycling fiction" entered literature and is basically away of coping verbally with this new bodily experience.

Overcoming gravity became one of the central themes in another branch of literature, namely science fiction. Jules Verne sends rockets to the moon (incidentally from Cape Canaveral), and he was well aware of the problems related to gravity. H.G. Wells was soon to follow. A number of fantasies circle around substances and powers alleged to counteract gravity. John Jacob Astor (who died in 1912 on the *Titanic*) writes in *A Journey in Other Worlds* (1894) of such a power known by the name of "apergy." Percy Grey in *Across the Zodiac* (1880), and Frederick Robinson in *The War of the Worlds* (1914) do something similar. Horace Hazeltine, in his story "Gull Feathers" (1908), invented an anti-gravity substance that could be extracted from a gull's claw. In this story the effect of "weightlessness" ends with rain, just as in MacDonald's "The Light Princess." E.V. Lucas (under his occasional pen name of E.D. Ward) published an ingenious novella on antigravity in 1910. In *Sir Pulteney: A Fantasy* the reader encounters a hotellier with a commercial inclination. He purchases a field in the Cotswolds and negotiates with Newton's heirs to make it a gravity-free area. The field becomes a commercial attraction for members of the suicide club and it is the job of Sir Pulteney to engage these people in discussion to prevent them from realizing their dreams, because whoever enters this field will be lost. It is interesting that the "laws of nature" here are put in a legal context. And it is relevant that physicists around this time were beginning to question the character of "law" in the processes of nature. Two years earlier, G.K. Chesterton had already assailed this notion of the laws of nature in his *Orthodoxy*.

Other fantasies connect antigravity with the concept of the fourth dimension, for example, Murray Leinster in his 1919 short story "The Runaway Skyscraper." Strange sights are being reported from Metropolitan

Tower skyscraper in Manhattan; the sun sets ever faster in the east and rises in the west. Suddenly the tower stands in a wooded, pre-Columbian world. An engineer inside the skyscraper concludes that it is too heavy and has slid **[52]** into the fourth dimension, thus turning into a reversing time-machine. The inhabitants succeed in lifting it out of this time-hole, and when it is back (or rather forward) in modern Manhattan, nobody seems to have noticed its temporary absence. In this example it is weight, not weightlessness, that causes disappearance from space and time. Both, however, denote a deviation from the natural laws that constrain human existence.

Weightlessness as a concept was also responsible for a new perception of space which led, in the second half of the nineteenth century (with pioneers as early as the 1820s), to concepts of non-Euclidean geometry. MacDonald was one of those who—like his friend Lewis Carroll—depicted a new spatio-temporal world in his fantasies. His most advanced ideas can be found in *Lilith*. There his narrator Vane experiences great difficulty understanding the laws of the world beyond the mirror and has to rely upon a mediator who is continuously transforming. Only by way of parodox and riddle can Mr Raven/Adam convey to Vane information about what is invisible, since this is a world not accessible to the unaided senses. "You know nothing about whereness," he tells him (10), He is in "the region of the seven dimensions" (18). Time speeds up unexpectedly at certain moments, just as Einstein makes speed dependent on gravity. On a half-day's walk they cross a whole season. Mr Raven explains:

> "That is because we have travelled so fast . . . . In your world you cannot pull up the plumb-line you call gravitation, and let the world spin round under your feet!" (25)

The rich imagination of H.G. Wells was also inspired by the notion of antigravity. In "The Truth About Pyecraft" an overweight club member plans to lose weight. The narrator complies with Pyecraft's desire for an Indian wonder-drug in his possession by giving him a sample. But instead of slimming, Pyecraft loses weight to the point of floating up to the ceiling: only a special type of lead corset can keep him down on the ground. For all its humour, this story is close to Kafka's "Metamorphosis" (which itself is not devoid of humour): "it was delightful to think of Pyecraft like some great, fat blow-fly, crawling about on his ceiling" (882). A further parallel can be found in Kafka's "The Hunger Artist," where the protagonist strives for weightlessness and immateriality by starving.

Another story by Wells connects weightlessness with a near-death

experience, In “Under the Knife” (1896), the narrator is anaesthetized for an operation and begins to have an out-of-the-body experience. Consciousness appears to him as a flame, and he sees the stream of thoughts passing by.

[53] Eventually he feels drawn out of his body as if by a magnet. Soon he flies above London, then into space. During his flight he realizes its implications:

> I had suddenly been cut adrift from matter: all that was material of me was there upon earth, whirling away through space, held to the earth by gravitation. (411)

Then he has a strange sensation: “I was not leaving the earth: the earth was leaving me” (412). The more he moves into outer space, the more matter seems to dwindle away: “the little universe of matter, the cage of points in which I had begun to be” (415). At last, a cloud approaches and gradually materializes as a hand. It is the surgeon’s hand performing the operation on him.

Like MacDonald’s fairy tale, this is a story about the separation of the body from the earth and about flight and return. The separation in “The Light Princess” initially results from the fact that the king had forgotten his sister. But, as noted, it is not a simple kind of forgetfulness: “she put on her best gown, went to the palace, [and] was kindly received by the happy monarch, who forgot that he had forgotten her” (4). It is this double forgetting, cutting him off from a spiritual reality, which produces a floating daughter. Chesterton diagnosed this type of double forgetting as a symptom of positivism:

> We are all under the same mental calamity: we have all forgotten our names. We have all forgotten what we really are. All that we call common sense and rationality and practicality and positivism only means that for certain dead levels of our life we forget that we have forgotten. (81)

The king’s forgetfulness, however, extends to language as well. His relationship to language can be described as a form of positivism, MacDonald repeatedly stresses that this king hates puns or does not want to recognise them. In a dispute with the queen he is put off by her ambivalent use of the key-word “light”:

> for the king hated all witticisms, and punning especially. And besides, he could not tell whether the queen meant light-*haired* or light-*heired*; for why might she not aspirate her vowels when she was ex-asperated herself? (13)

It almost seems as if MacDonald had an inkling of what Freud's *The Joke and Its Relationship to the Unconscious* would be all about. The king in a sense refuses to be inspired by the unconscious. He will not acknowledge the power which resides in punning, and he rejects the comic reconciliation of **[54]** sound and sense which manifests the autonomy of language. The sister he has forgotten is the right-hand half of his brain, as it were. By refusing the multiplicity and ambivalence of existence he closes himself off against the complexity of mind and soul. Consequently the unconsciousness punishes him with forgetfulness.

MacDonald dealt with these questions in the preface to *The Light Princess & Other Fairy Tales*. He points out that art and language live—and are nourished by—complexity and ambivalence, since words "are live things that may be variously employed to various ends" (viii-ix). They contain depths, and are imbued with music and colour. They not only describe, but create new meaning, and are ultimately as complex as a sonata or a thunderstorm. They resemble natural phenomena. "Does any aspect of Nature wake but one thought?" he asks (x). Words conceal and reveal the incomprehensible, and this is what MacDonald's whole work is about. "The greatest forces lie in the region of the uncomprehended" (ix). The most important pun in "The Light Princess" is the author's intrusion: "Perhaps the best thing for the princess would have been to fall in love" (24).

People who refuse this kind of ambivalent experience are like those who would prevent the princess from returning to human life. And, ultimately, this story is about return. Read as a comment on the nascent modern age, it suggests that the modern age after the mid-nineteenth century is obsessed with separation from the earth. Science and technology persue this aim, and often there is a hidden agenda—the quest for immortality. The material earth is bound up with mortality; therefore to go beyond earthly boundaries implies a search for immortality. In her giggling, weightless world the princess can painfully learn mortality only by "falling." A leap into outer space is an attempt to evade the consequence of the first Fall: i.e. death. This distancing of the body from earth, as paradigm of the distancing of spirit from matter, can be seen as a symptom of our technological culture. It is particularly evident in such phenonemaas "virtual reality" and "cyberspace."

Pioneer 10, the first man-made object to leave our solar system (on 13 June 1983) symbolizes ourselves (Romanyshyn 21-). That *Pioneer 10* will survive humanity seems certain. Levitating gurus and space engineers share the same search for immortality. Our culture increasingly practices

kinds of excarnation and dematerialization anticipated by writers of fantasies of weightlessness and antigravity: MacDonald, however, in his humble fairy tale, goes *beyond* their diagnosis and points out ways to a renewed incarnation that is a re-immersion into the human mortal existence. For one **[55]** thing is certain: this body is the only body we have. It is only **within** this body and within the world that anything spiritual can be realized, not outside it. MacDonald points to love and art as they remind us of that otherness, which yet is here and now, and not out there and tomorrow. Or, to quote Chesterton again: "All that we call spirit and art and ecstasy only means that for one awful instant we remember that we forget" (81).

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