

Beautiful destruction

The aesthetic of apocalypse in Hans Dominik's early science fiction

Though the term 'science fiction' was coined somewhat later, the early twentieth century saw an enormous rise in an interest in technological tales set in the near future, mirroring a general awareness of the growing importance of science.

Hans Dominik was one of the most prolific – and successful – German authors of this kind of popular literature. According to estimates millions of copies of his books have been sold, making Dominik's work an interesting case study illustrating the sorts of ideas about science that German-speaking audiences entertained. Being a trained engineer and a public relations officer by profession, Dominik drew heavily on scientific topics that were headline news at the time and yet he also managed to create something new on the basis of these.

One of the methods he employed was the use of religious motifs and *topoi*. Dominik magnified the relevance of scientific enterprises and depicted the consequences of science – or scientific misconduct, rather – as the beginning of a catastrophe, or even an apocalypse. By the same token, Dominik often introduced the figure of the scientist as a protagonist who would save the world. Thus Dominik was able to draw the attention of a large audience to concepts of the use of atomic energy or nuclear weapons – to name only two – and their creative or destructive potential, decades before such devices were technically feasible.

QUESTIONS CONCERNING the world's future energy supply emerged in the nineteenth century and were linked to the potential of radioactivity as soon as it was discovered. But how, exactly, did ideas about atomic energy develop, even decades before its use was technically feasible? The role that journalists and

authors of non-scientific texts played in this development has been neglected so far; according to Spencer Weart these writers are 'the most important but least known actors in the history of nuclear energy' (Weart 1988: 10). Following Barri Gold's approach to reading works of literature in general, and science fiction in particular, as a means of discerning how contemporary readers managed to 'think about the as-yet unarticulated' (Gold 2010: 17), this article will turn to the example of this bestselling author, Hans Dominik. His much-read works of science fiction not only familiarized a large German-speaking audience with the promises of what science might do for mankind in the future; they – as did some of his colleagues' works – also strikingly did so by making lavish use of religious imagery, depicting science as a "faith" of the future' (Fischer 1984: 89).

Hans Dominik (1872–1945) was one of the most popular German writers throughout the 1920s and 1930s, and especially in his science fiction texts he was a fervent proponent of scientific progress; and yet he and most of his books are more or less forgotten today. It should be emphasised that the term 'science fiction' (SF) is intended to be used here as a neutral term to refer to examples of this particular genre on their own terms, and not with the derogatory connotation some authors have applied to it – such as, for example Manfred Nagl, who deems all SF to be a kind of simplistic, inferior and meaningless form of utopian text (Nagl 1972: 23–50). Although the term 'science fiction' had not been coined during Dominik's time, it is nevertheless an appropriate one to use in this context, for since the late nineteenth century European audiences had become familiar with such narratives of technology and fantasy – in Germany often called *Zukunftsroman* ('futuristic

novel') or *technisches Märchen* ('technological fairy tale') – that were to become representative of the genre (Innerhofer 1996: 11–13). Alongside famous writers such as Jules Verne or H. G. Wells, innumerable authors produced such stories for the mass market. As Dominik was the most successful German writer of this genre, his works provide a fair sample of the kinds of stories millions of readers were acquainted with. An analysis of these texts might give an insight into why a topic such as the applications of atomic energy was so widely disputed in public, when most scientists at that time did not believe that this particular source of energy would ever be tapped. An examination of the mythological and religious motifs which were to be found in the genre may add to an understanding of why SF in general and the work of Dominik in particular became so popular.

Hans Dominik: the author and his background

Born and raised the son of a bookseller and publisher from Zwickau, Dominik attended the Gymnasium Ernestinum in Gotha, where one of his teachers was Kurd Lasswitz. From the point of view of literary criticism a better author (Fischer 1984: 179), and far from being unsuccessful, Lasswitz never attained the same level of immense popularity or commercial success that Dominik did. Yet one might speculate that he – a trained scientist who had become a teacher – had no small influence on Dominik. In his memoirs Dominik remembers Lasswitz fondly (Dominik 1941: 26), but so far there seems to exist no deeper analysis of the connections between the works of those two early German science-fiction writers. Though Fischer compares the work of both authors, he provides no systematic analysis of the influence of the former on the latter. Nor has the role of the various other writers Dominik had met as a young author in Berlin's famous Café des Westens, ranging from the respectively conservative and nationalist Ernst von Wolzogen and Johannes Schlaf, to more liberal thinkers such as H. H. Ewers and Alexander Roda Roda, to – in Dominik's and many of his contemporaries' eyes – such social misfits as Peter Hille or Erich Mühsam (*ibid.* 124), yet been scrutinized.

The main reason why Dominik's novels, not to mention his short stories, are mainly unknown to a wider audience, as well as to many academics, is that his fiction has been said to be chauvinist or racist (Novian 2013: 146). Dominik was certainly a

conservative, but besides, as Jost Hermand rightly observes, he simply 'shared – quite profitably – during his lifetime the prejudices of the majority of Germans' (Hermand 2003: 57). The accusation by William Fischer and others that Dominik played into the hands of the Nazi regime with racist depictions of characters in his work (Fischer 1984: 179) seems to be a bit too far-fetched. On the other hand though, Detlef Münch's claim that Dominik was appalled by Nazi censorship and went 'into inner emigration' (Münch 2010: 48), is also exaggerated; but it is still correct to say that Dominik did not adapt easily to fascist ideology. He seems never to have been a NSDAP party member like so many other successful (and opportunistic) authors and artists. During the period of NS rule, some of Dominik's books seem even to have been censored or banned (*ibid.* 44–8). The main characters in Dominik's works are stereotypically white males, but then this holds true for most bestselling mainstream fiction, ranging from the more mature to the less refined, more formulaic works. It is safe to say that Dominik, as did any mainstream author, modelled the characters of his stories in such a way that the average reader – in his case certainly mainly German boys and male teenagers – could identify with them. Most of the distinct, non-fictional didactic texts and especially the short stories in *Das Neue Universum* ('The New Universe'), a literary yearbook for young adults, were aimed at the entertainment and education of boys between 12 and 16 (Hrachowy 2010: 92–3). The idea that the author exclusively adapted his books to suit the taste of his audience is especially plausible in Dominik's case, as he used to declare that he had left his various jobs in the public relations offices of important electrical engineering companies – such as AEG or Siemens-Halske – in order to become a freelance author who could earn more money for the same amount of work (Dominik 1941: 50; cf. also: Kunzick 1997: 244). Being employed variously as a technical draftsman, as well as a PR officer for these electrical engineering companies, or working as a screenwriter for 'infotainment' films, as we might call them today, or being the author of brochures and flyers, and finally, as a bestselling science-fiction author (Kunzick 1997: 243), he was an important figure in the process of popularizing science in the Weimar Republic. Since the second half of the nineteenth century science and technology had prospered in many European countries, but especially in Germany. The founda-

tion of universities, the professionalization of many fields of study and the importance of technology had gained ground due to the industrial revolution, and this led to an increased public interest in scientific topics and a growth in media coverage of the subject (Schwarz 1999: 48–88). Thus, although a re-reading of Dominik's work might be desirable in its own right, even more importantly he was one of the most widely-read science-fiction writers of his day, selling about three million copies of his books, according to estimates – not to mention his output of short stories and serials. Analysing his science fiction therefore provides a means of ascertaining what concepts of science or scientific progress a not-scientifically-trained mass audience had in mind, and what aesthetic sensibilities went along with that understanding.

The best approach for an analysis of Dominik's work seems to be a closer scrutiny of the motifs and images he made use of. What aspects of contemporary science did he weave into his stories? What fragments did he rearrange to form his easily understandable and widely-read SF plots? As will be pointed out later in more detail, it seems that Dominik, like many other contemporary SF authors, including such famous ones as H. G. Wells, drew heavily on the work of the British radiochemist Frederick Soddy as a source for ideas, – especially his popular talks and writings. However, in contrast with his more famous contemporary, Dominik combined reminiscences of contemporary science with elements of religious motifs. Though Dominik was certainly deeply convinced of the utmost social importance of science, there is no direct proof that he himself thought of it as a religion. Always having the sales figures in mind, he believed that to strike a balance between the 'god-like' and human traits of his characters was the very means to 'keep the reader captivated' (Dominik 1941: 223). As a consequence, the term 'religious motifs' in this re-reading of Dominik's most successful novels will focus on the use of actual literary images and narrative patterns that audiences would have recognised from a variety of religious (con)texts in the broadest sense, including profane adaptations of different religious *topoi*. As will be shown, these recurring patterns touched upon very different themes such as, for example, the appearance of saviours and/or saint-like figures, a depiction of the creation or, more often, the dawn of the apocalypse.

The texts of many of Dominik's novels have been altered several times. According to contemporary

taste and political considerations changes were made during the Third Reich as well as after World War II. For example, in *Das Erbe der Uraniden* ('The Legacy of the Uranides') the clichéd depiction of a 'red Soviet' threat in the form of the Russian army (Dominik 1927: 5) in the opening sequence was replaced by, or rather disguised as, a 'Russian-Manchurian' army in later editions (Dominik 1972: 5). Münch has pointed out that the novel *Ein Stern fiel vom Himmel* ('A Star Fell from Heaven') was altered in several chapters due to Nazi censorship (Münch 2010: 44–8). These alterations make it difficult to draw reliable conclusions concerning the political statements of the texts, yet there seem to have been no major changes concerning the 'scientific' content itself whatsoever. Many of Dominik's novels were co-authored, but these co-writers would usually not be mentioned on the cover, so in the following 'Dominik' will refer to any constellation published under this 'brand-name' (Hrachowy 2010: 158–64).

With the depictions of cardboard characters, short declamatory dialogues, manifold onomatopoeic expressions and the fast pace at which the plots of Dominik's SF works often turn, they might be deemed comic books without pictures. As will be pointed out, some of his characters anticipate the concept of the superhero – as well as the supervillain as his antagonist – as they precede the development of classical superhero comic fiction by some years. Dominik's work thus fills the gap between the earlier pulp fictions instanced by dime novels or 'penny dreadfuls', in Germany issued as so-called *Groschenhefte*, and comic books proper. In the case of actual superhero comic books, Daniel Stein has argued that the serial nature of the medium demands the use of certain narrative strategies in order to keep the reader interested in the stories of periodically issued and multi-authored books (Stein 2013: 157–8). This seems to be a highly plausible explanation of how Dominik's fiction could be so utterly simplistic and yet extremely successful at the same time. Actually, a number of Dominik's SF novels were initially published in serial form. Frank Hrachowy gives the example of novels published by the Duncker (Hrachowy 2010: 149) and Scherl-Verlag concerns (*ibid.* 164, 176). The latter owned, amongst other things, periodicals and a weekly magazine, aptly called *Die Woche*, in which some of Dominik's stories were first published, providing ample opportunity for Dominik's work to reach a range of audiences, or

rather to cover the whole market for all the popular entertainment types of fiction (*ibid.* 184–5). Besides a number of other contemporary fiction genres and a huge corpus of non-fictional texts, Dominik wrote about sixteen SF novels, compared to just 12 non-SF novels, and at least fifteen SF short stories. They covered a range of topics relating to classic SF themes, from a revolution in the world's future food supply in *Die Nahrung der Zukunft* ('Food of the Future', Dominik 1907: 7–35) to space-race adventures such as *Die Reise zum Mars* ('The Journey to Mars', Dominik 1908: 36–56). Yet all his works share an emphasis on more technological elements rather than cultural or sociological ones. One of the recurring features in Dominik's fiction, therefore, is the question of energy supply. Hrachowy even suggests using the term 'energy novels' for the corpus of Dominik's earliest and latest SF works (Hrachowy 2010: 158). Dominik deals with various aspects of this topic, from the causes of a future energy shortage to the economic and political consequences of the (fictional) technological means resorted to for overcoming the shortage. Dominik suggested repeatedly that nuclear or atomic energy – the author was not precise in delineating the two semantically – represented one possible area of resource for the solution to the problem. Though some of his novels on atomic energy were written after 1938 – that is to say, after nuclear fission had been discovered – this analysis will focus on some of his pre-1938 texts in order to explore pre-scientifically established concepts of atomic energy and their public reception. Additionally, it will focus on how he depicted this 'futuristic' science and how he made use of religious aesthetics.

The scientific challenge: a need for new sources of energy

The starting point for Dominik's considerations of energy can be clearly located in the 'coal question'. His 1919 short story *Schätze der Tiefe* ('Treasures of the Deep') does not focus on atomic energy, but rather directly refers to the issue of the coal question (Dominik 1919: 112–13). The problem of the finiteness of fossil energy sources such as coal had been first brought to notice by the English philosopher and economist William Stanley Jevons in 1865. He advised the British Government to cut the national debt, in order to be able to save money to buy in foreign coal when British mines would run out of the

commodity in the future (Jevons 1866). The fear that national economies would exhaust their major fossil energy supply spread widely in the second half of the nineteenth century and was backed by findings of geologists concerning the nature of coal and coal mines. In Germany the so-called *Kohleknappheit* – shortage of coal – became an urgent issue for the first time around the year 1900, when exceptionally cold winters and price agreements set by the coal suppliers' syndicate led to an extreme increase in coal prices (Richter 2007: 118, 192).

Though Dominik's SF works generally focused more on the technological aspects of his conceptions of future societies, some of his works bordered on myth, or even the fantastic. The short story *Ein neues Paradies* ('A New Paradise'), published in *Das Neue Universum* in 1910, and his novel *Der Brand der Cheopspyramide* ('Cheop's Pyramid'), released by Scherl in 1925, subvert Dominik's standard formula for constructing a storyline. In a modest attempt at an alternative history, his early piece *Paradies* is conceived of as a speculative history of energy, written from the point of view of the future. He starts his narrative with a delineation of the hunter-gatherer societies of the pre-Stone Age, which exclusively depended on the energy from the sun making everything grow, and he ends his story with an imagined use of atomic energy in the future. In doing so, Dominik divides the different epochs of the history of energy into a schema that today is still deployed by popular historians of economics (cf., e.g., Malanima 2010: 68).

Despite its rather unusual style, this short story still shares one major feature with most of Dominik's works: the portrayal of a relationship between a pupil and a teacher. Often a character such as a professor or teacher instructs younger, weaker or female companions in some form of a new technique or scientific enterprise. In the case of *Paradies* it is first an ancient, ape-like, pre-Stone Age man who teaches his fellow beings the use of fire (Dominik 1910: 57–60), followed by modern-day physicists (*ibid.* 70). Here Dominik describes his ideal scientist: the (male), daring, clever genius. All of Dominik's scientist characters stand literally in the tradition of this 'ancient magician' (*ibid.* 60). Tanja Paulitz has pointed out that at the turn of the last century conceptions of male engineers in Germany oscillated between the image of the rationalist scientist and the energetic go-getter (Paulitz 2012: 314–16). One might understand

Dominik's depiction of almost superhuman engineers and scientists as an attempt to bridge those differences between the more practical and theoretical tendencies in the scientific domain by incorporating both aspects in one single character.

Paradies presents an interesting case study for a deeper scrutiny of Dominik's motifs, as here he spells them out explicitly. He refers to the works of Marie and Pierre Curie (Dominik 1910: 64) and dedicates much space to the works of Frederick Soddy; in Dominik's words Soddy 'wrote the book of Genesis anew':

In the beginning was Uranium. And Uranium sent out α -rays at the velocity of two thousand miles a second, and it lived for seven and a half billion years. Then it came to an end, was spent, but during its radiation it had begot Radium. (Dominik 1910: 68, translated by the author)

This 'Genesis', though quite declamatory, is nevertheless reminiscent of Soddy's style, who also used this very expression in some of his lectures (Soddy 1913). The same applies to the enumeration of the lifetimes of the elements – many of Soddy's articles featured tables with the according data, though the expressions 'lifetime' and 'half-life' seem to have been confused in translation. Soddy kept them constantly updated, so that no two of them show the exact same lifetime of the respective elements, but a period of roughly five days for radium emanation is repeated in most. These works of Soddy were well known to the German readership as his papers and public lectures were published in translation, including the aforementioned tables (Soddy 1904a: 35; Soddy 1904b: 154). Fischer states that Dominik – given his somewhat nationalist bias – showed surprisingly marginal interest in those fields of study that especially German researchers had made promising advances in, such as, for example, space flight (Fischer 1984: 249). One must challenge Fischer's statement however, as Dominik wrote a number of short stories and novels centring on the topic. In *Paradies* the author even merges the idea of the use of atomic energy with an interest in rocket science: nuclear energy is used here to fuel rockets (Dominik 1910: 74–5). Nevertheless, Dominik's focus on Soddy's work might explain why he was so interested in topics that were also being hotly debated in British or US feuilletons. It would exceed the scope of this article to enlarge in

any detail on whether, and the extent to which, scientists reacted to popular ideas about atomic energy. But, with the exception of Soddy, most physicists and chemists seem to have objected to it (cf., e.g., Rutherford 1923: 417–19).

Another recurring motif in Dominik derived from popular texts by Soddy is the concept of 'transmutation' as a means of producing gold and liberating nuclear energy. Soddy repeatedly stated that

The special value of gold is, of course, merely conventional and could and would be changed by a stroke of the legislator's pen. ... Energy, not gold, will be the quest of the modern scientific alchemist. (Soddy 1912: 195–6)

The short story *Zukunftsmusik* ('Dreams of the Future') is largely based upon Soddy's premise. Dominik has the protagonist explicitly refer to the work of Rutherford several times (Dominik 1921: 136–8), while mingling Soddy's ideas with his own:

Professor Hansen shifted his position. "Now, please allow me as a physicist to instruct the economist. The value of Gold is entirely based on its rarity. ... As soon as we were able to make gold arbitrarily, as a result of state intervention it would fare as in the case of paper money during World War and five years after." (Dominik 1921: 139, translated by author)

Saviours and scientists: atomic energy for the greater good of mankind

In *Der Brand der Cheopspyramide* the motif of the fulfilment of the old alchemist's dream is repeated and the insight that the energy released would be far more valuable than the gold itself is also indicated by Harder, one of the main characters (Dominik 1925: 37). Despite having the same source of inspiration, *Der Brand der Cheopspyramide* is quite different from stories such as *Zukunftsmusik* and is one of Dominik's more daring novels. Still quite formulaic and trivial in its style and conception of plot, it does contain a sketch of a future lifestyle full of innovatory technological devices such as television – in 1925 still in the experimental stages – telecommunications, and helicopters and airships as means of individual as well as mass transportation, thus being one of few of Dominik's works giving such a detailed description

of aspects of everyday life. Even more importantly, in *Cheopsyramide* Dominik clearly transgresses the border to the fantastic genre, as the protagonist and antagonist of the novel have supernatural powers and do not only possess knowledge of secret and/or new technologies.

Cheopsyramide is, like most of Dominik's SF works, set in the near future – from Dominik's point of view. The major part of Eurasia has been conquered by an alliance of three caliphates (Dominik 1925: 14, 101). The North African caliph, Abdurrhman, has re-conquered Spain, to the chagrin of the European states who have formed a kind of union, albeit an unstable one, due to constant quarrelling and discord (*ibid.* 13–15, 91–6, 100). It is interesting to see that Dominik does not equate 'enemy' with 'antagonist' here. The caliph is the leader of a hostile nation, but is not simply identified with a notion of 'evil'. Being predominantly a just ruler, interested in science and philosophy (*ibid.* 46–8) Abdurrhman is nonetheless proud and prone to insinuations that promise the acquisition of even more power. His secret lover, a Russian baroness, Jolanthe von Karsküll, spurs on in him the wish to seize world power so that one day she can rule by his side: 'Wir im Besitze der Atomenergie! ... Die Welt uns untertan!' ('We in the possession of atomic energy! ... The world at our service!', *ibid.* 132). The question of morality in connection with the application of science is repeatedly touched upon by the author. Dominik places special emphasis on socio-economic issues in *Cheopsyramide*. The stock markets react hysterically to any news about the new source of energy, allowing the market for shares in coal and coal mines collapse within less than one day – making the production of such news, whether real or fake, a means of waging economic warfare (*ibid.* 5–6), an idea he might have taken up from Soddy's *Evolution of Matter* (Soddy 1917: 17). Dominik also shows that a change in the system of energy supply towards more 'effective' sources of energy could affect the jobs of thousands of workers (Dominik 1925: 10). Meanwhile the German engineer and inventor Friedrich Eisenecker has managed to solve the problem of atomic energy on his own, along the way fulfilling the old alchemists' dream of producing gold from less valuable materials (*ibid.* 17–19). Eisenecker then travels to Spain to assist Spanish freedom fighters against 'Moorish rule' with new weapons he seems to have produced with the help of his knowledge of atomic energy (*ibid.* 101). Finally, the engineer and

his former employer Harder – the president of a huge German chemical company and an internationally renowned expert in questions of atomic energy – join forces, destroy the apparatus in the pyramid, end the rule of the caliph in Spain and establish a transition to 'clean and cheap' atomic energy, carefully taking the (economic) fate of workers and consumers into account (*ibid.* 282–95).

What makes *Cheopsyramide* different is its portrayal of the main characters. Of course, their inner monologues can best be described as cheesy, and actual character development is non-existent; and yet they are striking, as they possess supernatural properties. Though Dominik made use of supernatural aspects in other novels as well – in *Das Erbe der Uraniden* a number of people have psychic powers – in *Cheopsyramide* he takes the trope further. The protagonist, Eisenecker, seems to have the power to control energy without the help of any machine, hurling lightning at his enemies with his bare hands (Dominik 1925: 187), leaving his companions in a state of shock:

With bare hands he thrust forth death and decay. ...

Was this still a human being? – – Was he sent from heaven? – Was he sent from hell?

(Dominik 1925: 189, translated by the author)

The antagonist is 'sent from Allah' (Dominik 1925: 217, 253). Given the reluctance Dominik showed for incorporating women into stories involving technology it is quite stunning that the antagonist is not the caliph, but a woman. Baroness Karsküll is portrayed as the female proto super-villain: daring, clever, beautiful, outwardly cold, but full of suppressed inner feelings and desires. Maybe Dominik used the myth of Mata Hari as a model for her character, as the case of the famous female Dutch spy had already inspired one of his contemporary novels (Münch 2010: 150). The end of the villain and her lover – of course it is the baroness who has to take action – outdoes many comic books that were yet to be written in its flashy and pompous description of their suicide:

He seized the [atomic (!) *addition by author*] bullet... playfully he threw it in the air.

Now! The blade of the sword hurtled, dashing around his head, hitting it in free fall... [...]

A small bluish sphere was dancing on it...now

it came free... Playfully, like a dancing butterfly
it floated around them [...]
“Death! Are you trying to fool us?”...
Jolanthe was screaming. Her right hand seized
the sword from the ground. [...]
The sphere... the dancing sphere... now it came
near again...
[...] The weapon was zinging through the air...
hit it...
[...] ...a bluish fire, discharging into million
flashes... a million-fold thunderclap... the sky
radiant for minutes. – – –
Now the ancient silence of nature again.
Where the legendary remains of the Moorish
royal palace had been – – – sent heavenwards
with its king and queen. No trace of them left
in this world. (Dominik 1925: 293–4, translated
by author; dashes and blank spaces correspond
with the original)

From the point of view of the historian of science this passage holds another interesting clue. Obviously, the author tries to imagine a scenario in which the energy of atoms could replace conventional gunpowder as fuel for bullets. Of course, this is technically impossible and Dominik may have well known so, yet the imagery he uses, the ‘bluish’ hue of the released energy he repeatedly mentions, betrays another of Dominik’s possible sources. Under certain circumstances electromagnetic matter may travel faster than light through a given medium, emitting a faint blue light. Described by some pioneers of radioactivity research, it was the Russian physicist Pavel Cherenkov who systematically studied the phenomenon in the mid-1930s (Cherenkov 1934: 451).

Apocalyptic visions: the perils of atomic energy

For a re-reading of Dominik’s oeuvre probably the most interesting work is *Das Erbe der Uraniden* from 1927. Usually deemed to be one of his more racist and simplistic novels (Hrachowy 2010: 173–4), a closer inspection does rather disclose anti-scientific and dystopian elements. Again set in the near future, *Erbe* takes a closer look at what happens when science is used in the wrong way, or rather by people who do not have the moral standards to use it for the good of mankind; a motif that features in other works by Dominik as well. In *Erbe*, a superhero-like scientist, Gorm, invents secret means of accessing atomic

energy (Dominik 1927: 32–3). These are necessary as ‘white’ Europeans are fighting another world war against the ‘red’ Soviets (*ibid.* 5). But the technology is stolen by an evil fellow scientist, Canning, who sells it for three million roubles to the enemy (*ibid.* 16–17). After millions of civilians have been killed (*ibid.* 20), the war ends in a climactic air battle above a South American island. Unfortunately, the remains of the atomic weaponry somehow infest the ground of the island with a nuclear fire – *Atombrand* – that threatens to destroy the whole earth (*ibid.* 53, 56–60, 102–7). As a remedy, the burning rock is cut out and taken to the moon by a hastily built rocket (*ibid.* 116–18). However, it turns out that the piece of rock contaminates even the moon with nuclear fire (*ibid.* 139, 263). Any attempt to extinguish the fire in a conventional way leads to more natural catastrophes (*ibid.* 175–9, 184). A possible escape route might be the (habitable) planet Venus, which might serve as a retreat for mankind, especially as suddenly life-signals of super-intelligent aliens seem to be coming from there (*ibid.* 156–62), promising access to an alien super-technology to deal with the problems on Earth. As it turns out, the aliens are *Uraniden*, originating from some faraway galaxy but shipwrecked on Venus (*ibid.* 170–1). In the end Gorm saves Earth and the moon with the help of alien means, without disclosing the secrets of this technology as he thinks that mankind is not yet ready to possess such powers (*ibid.* 319–21).

Though the plot is thick with trivial turns such as finding long-lost relatives, or a triangle in which the evil scientist and one of the hero’s younger fellow scientists long for the same girl, *Erbe* is full of a critique of science and technology which is quite uncommon for Dominik, who usually advocates science in a rather naïve way in his writings. First of all, as in *Cheopsyramide*, the antagonist and enemy are not identical. Whereas Awaloff is the grim leader of the Soviet forces, betraying an opportunist and somewhat pragmatic knowledge of politics (Dominik 1927: 14–17), the true villain is the scientist – Canning. He is depicted as being evil because he is jealous of Gorm who was his fellow student at university and who has been far ahead of him scientifically ever since. Canning sells the secrets of atomic energy to the Russians for this very reason, in order that the whole world may think that Gorm is a traitor (*ibid.* 32–3). In order to cover his tracks Canning even betrays his accomplice Awaloff and tries to kill him, turning the formerly strong warrior

into a madman (*ibid.* 179–83). Dominik refers to the three million roubles Canning earned as a *Judaslohn* ('thirty pieces of silver'). The sin of greed and the sin of pride as the prime sources of evil are the central themes of the novel. They are owed to problems of priority – the question being who is the true inventor of a new technology if two individuals work on the same problem for a long time, but one manages to produce results first?

Audiences of the time were used to encountering this kind of dilemma, as the 1920s were the heyday of scientific controversies which were played out in public. Robert Andrews Millikan, Ernest Rutherford and Arthur H. Compton, as well as a number of German-speaking researchers, had all been involved in some serious scientific debates that were not only carried out in scientific journals, but also drew large audiences to conference talks, or even made it into newspapers and popular radio features. One such article that in 1925 did stir a debate on priority claims amongst physicists was anonymously published in the *New York Times* and even quoted in *Science*. The writer suggested calling cosmic rays that had been discovered by European scientists more than a decade ago 'Millikan rays' in honour of the Nobel Prize winner Robert Andrews Millikan, who had just managed to prove certain properties of the rays:

He found wild rays more powerful and penetrating than any that have been domesticated or terrestrialized ... [T]hey [i.e. the rays] would more appropriately bear the name of the penetrating mind that passed through the miles of space to the far frontiers of our atmosphere and there met these strange forces of the universe coming out of space ... (Anonymous 1925: 461–2)

Naturally, European physicists did not respond too well to this suggestion and for the ensuing months the working atmosphere, especially between German-speaking physicists and their US colleagues, contained some bitter overtones (De Maria *et al.* 1991: 165). But the example shows fairly well the nationalist bias audiences were accustomed to, as well as the pompous style in which scientists were celebrated as modern-day pioneers. There is no direct proof as to whether Dominik was familiar with this particular debate, but at that time there was no lack of such controversy in Europe, where for example

Rutherford and Sir James Chadwick, from Cavendish Laboratories, had a fierce encounter with Austrian-based radioactivity researchers Hans Pettersson and Gerhard Kirsch on the issue of the artificial disintegration of atoms (Stuewer 1985: 239–42).

While Dominik's works often show an almost naïve belief in the greater good of science, in *Erbe* he also describes its hazards, especially the death of civilians caused by the relatively small high-tech armies of both sides:

Inestimable the numbers of human sacrifice.
Rumours talked about millions. The battles had almost entirely been air battles. The number of combatants on both sides was not very high...
The higher was the number of victims that had not been involved in battle.
Terror... that horrible warfare material... used relentlessly to demoralize the civil population, to make their governments docile.
The bombs of hell, fuelled with the new energy, thrown on big cities, landscapes... producing vast stretches of desert.
The end of the world for the eyes of those who could watch these visions of terror without going mad. (Dominik 1927: 20, translated by author)

Here again the work of Soddy seems to have been the probable source, as he had already anticipated the use of atomic energy as a weapon in 1903 (Soddy 1903: 16–17). During World War I he decried the fact that science in general and radioactive research in particular were 'pressed into the service of war' (Soddy 1917: 17), while millions were struggling with the more immanent perils of nature, such as hunger or illness (*ibid.* 18). He also anticipated the inhumane, almost sterile 'swiftness' of it:

War, unless in the meantime man had found a better use for the gifts of science, would not be the lingering agony it is to-day. Any selected section of the world, or the whole of it if necessary, could be depopulated with a swiftness and dispatch that would leave nothing to be desired. (Soddy 1917: 17)

Dominik even mocked the practice of claiming new territories for single nations by simply being the first one to stick a flag into the newly-discovered soil

– in the case of the Venus expedition his protagonists do not even leave their vehicles, but simply drop the flags from their spaceships, indicating additionally that in his opinion the proper means of discovering new worlds is through scientific measurement only (Dominik 1927: 209, 283).

Fischer takes the case of the spaceship in *Erbe* as one example illustrating that Dominik did not understand the scientific aspects of his own plots very well. Fischer points out that, for example, the use of a rudder in a spaceship, as described in *Erbe*, is of no use, as there is no medium like air or water for it to work against (Fischer 1984: 251). From our current understanding of space and spaceflight, this is, of course, true. But, having a closer look, one easily recognises that Dominik was well aware of this lack of medium and therefore described outer space as being filled with ‘ether’ serving as a medium (Dominik 1927: 217). When *Erbe* was written, the ether theory had already been proven wrong by Albert Michelson and Edward Morley and others (Michelson and Morley 1887: 333–45). Now, at a first glance this may seem to present an even stronger proof of Dominik’s lack of scientific knowledge, but one should not forget that the rival theory that developed, after the Michelson–Morley experiment, was Albert Einstein’s theory of special relativity. Fischer himself has to admit that Dominik might simply not have felt attracted to this ‘Jewish’ theory of physics (Fischer 1984: 239). Anyway, the relativity theories were hotly disputed amongst physicists and though many of them finally accepted the concept of relativity, still quite a number clung to the concept of ether as well, trying to match both theories (Wazeck 2009: 169–81). So, the imagery of spaceships moving through ether as a medium does in fact betray some intimate knowledge of physics in the 1920s and the substance of contemporary discussions in the field. Given Dominik’s biography one might even be able to locate the source of this knowledge. Kurd Lasswitz, his former maths teacher, was not only a writer of SF, but had also published two volumes on the history of atomism, including some chapters on different theories of ether (Lasswitz 1890).

One recurring argument in critical treatments of Dominik’s work concerns the portrayal of his protagonists, who are all more or less blond, strong, and German – or at least European – geniuses. Usually, this depiction is seen to be a simplistic, racist stereotype (Fischer 1984: 208–9). But especially the case

of Gorm could be understood in a way that suggests that Dominik wanted to portray a simplified version of the Nietzschean ‘Übermensch’. Gorm is depicted as a kind of ‘future man’, the prototype of a future ‘race’ of superhuman beings, having strong resemblance to the ‘super race’ of the Uranides (Dominik 1927: 192–3, 236). For that very reason he and Majavedi, a medium, finally travel to outer space. As mankind is not yet far enough developed to make use of the legacy of the Uranides responsibly, they take the alien technology with them (*ibid.* 319–21). Fischer has pointed out that Dominik’s conception of scientists as superhuman beings has a disturbing effect of ‘oscillating’ between two extremes: the scientist being the supremely rational man, but also, being the bearer of a superior will and mind at the same time, a mythological ‘reincarnation of ancient heroes’ (Fischer 1984: 235), a notion that certainly owes a great deal to the aforementioned heterogeneous conception of the role of the engineer in Germany at that time (Paulitz 2012: 314–16).

One of the most important anti-scientific or sceptical viewpoints represented in *Erbe* is the idea of a ‘nuclear fire’. As Weart has pointed out, the concept of ray weaponry might go as far back as ancient myth (Weart 1988: 43–5), but what is so intriguing about Dominik’s *Atombrand* is the imagery of it as a kind of ‘infection’ spreading inexorably until it consumes the whole earth and destroys all life on it. This concept of a dangerous chain reaction seems to have become quite commonplace as scientists began to work on artificially ‘disintegrating’ atoms by means of bombardment with alpha-particles. Frédéric Joliot made pointed reference to this in the Nobel Lecture he gave on winning, together with his wife Irène, the prize for chemistry in 1935:

If, turning towards the past, we cast a glance at the progress achieved by science at an ever-increasing pace, we are entitled to think that scientists, building up or shattering elements at will, will be able to bring about transmutations of an explosive type, true chemical chain reactions. If such transmutations do succeed in spreading in matter, the enormous liberation of usable energy can be imagined. But, unfortunately, if the contagion spreads to all the elements of our planet, the consequences of unloosing such a cataclysm can only be viewed with apprehension. (Joliot 1966: 373)

The question of artificial ‘transmutation’ and the problem of the radioactive chain reaction is closely connected to another of Dominik’s novels. In *Atomgewicht 500* (‘Atomic Weight 500’), two US-based chemical corporations compete for the production of transuranic elements with the eponymous atomic mass of 500 (Dominik 1934: 18–21). Both initially try and fail disastrously (*ibid.* 5–7), not least due to a good deal of mutual industrial espionage and acts of sabotage, until the (German) engineering genius Dr Wandel (*sic*) manages to produce an element that is stable and can be used in a controlled chain reaction to boil water and fuel a steam turbine (*ibid.* 207–15). Less wild in its twists and turns of plot, *Atomgewicht* is one of Dominik’s novels that does without a cheesy and artificial love story, resulting in a slightly more realistic character development. Dominik had visited the US twice and during his second stay had worked for a machine factory as a draftsman (Dominik 1941: 44, 84–5), an experience that seems to have resulted in more life-sized protagonists, in contrast to the almost super-human, charismatic geniuses of his earlier novels. *Atomgewicht* is certainly one of Dominik’s more mature works. The science depicted here is by far much less ridiculous than some have suggested (Fischer 1984: 239). On the contrary, it exhibits some knowledge of the more obscure contemporary works in nuclear physics. Published in 1934, that is to say before nuclear fission had been discovered, *Atomgewicht* combines a number of different elements derived from contemporary research. According to his memoirs Dominik was inspired by the search for transuranic elements (Dominik 1941: 277–9). This is interesting insofar as it was still a matter for inquiry in theoretical physics in the 1930s; the first elements with an atomic number higher than uranium were produced by means of neutron bombardment in 1939 (Heilbron 2005: 332–3). To the modern reader the use of an autoclave to produce a new radioactive element, as described in *Atomgewicht*, might appear strange, but in Dominik’s time it was a method used for experimentally producing new types of synthetic substances (Ndiaye 2007: 98). Furthermore, the way in which the atomic energy stored in the newly-produced element is used in the novel is very telling concerning Dominik’s most probable sources. The element is put into a water reservoir where it heats the water by means of an exothermic reaction and the steam is then used to run a turbine (Dominik 1934: 213–14). This principle not only faintly resembles the

function of modern nuclear reactors such as the boiling water reactor, but in Dominik’s time there was another kind of boiler which bears a striking resemblance to the concept presented in *Atomgewicht*. The so called *Natronlok*, a kind of alkali boiler, was a fireless, steam-powered locomotive. It had been designed and built by German engineer, the chemist and entrepreneur Moritz Honigmann, who was just the kind of all-round talent whose life story and inventions would have appealed to Dominik. Fireless locomotives had been invented during the nineteenth century and they were fuelled by steam that had been heated in an external boiler and was then stored in the locomotive. Their main disadvantage was a rapid loss of steam pressure, which meant that the steam had to be placed under extreme pressure of up to fifteen atmospheres, equalling roughly 1500 kPa, increasing the danger of catastrophic boiler explosions. Honigmann’s invention was fuelled by low-pressure steam of about 700 kPa and soda lye. The emission of the steam used in the boiler would be channelled into the heated lye where the exothermic reaction would fire the boiler again, thus producing more steam. The system was used in some cities for running tramways (Mähr 2006: 26–41). With the *Natronlok* in mind it becomes clear why Dominik would give his fictional new element strong exothermic properties: he had designed a radioactive alkali boiler. Given the fact that radioactive elements such as radium actually belong to the alkaline earth metals, the idea was not as far-fetched as it may seem at first. The allusions to the ‘fireless’ boiler becomes clear at several points throughout the book, as for example when Dr Wandel demonstrates the powers of the new element:

He saw Dr. Wandel opening the fire-hole door, saw the dark cave with the empty grates, saw that Dowd was extracting his hand, and hurriedly drawing it back.
“Nonsense”, he murmured, “Why is the Chief Manager making such a fuss? The boiler is cold, isn’t it?” ...

He looked up and thought he couldn’t believe his eyes. The hands of the manometer, that just moments ago had indicated “zero”, as one would expect from a cold boiler, were rising rapidly. Now they were showing a pressure of five atmospheres... , seven atmospheres, ten atmos-

pheres... (Dominik 1934: 211–12, translated by the author)

Consequently, the production of heat and steam by means of a chemical reaction is also given prominent place in the narrative, as the protagonist saves his former employer at the United Chemical plant and the surrounding city from an accidental wipe-out by throwing the new element into a nearby lake:

... deep down he saw patches of white fog boiling above the waters. One moment they were small and unimpressive, the next much larger and more powerful. The fog was stretching over the water in all directions, as quickly as the wind, and soon it was building into a heavy cloudbank above it. (Dominik 1934: 284, translated by author)

Interestingly, during World War I Frederick Soddy conceived of a kind of soda boiler to propel steamships, broadly speaking for military use, on behalf of the British Sub-Committee of Marine Engineering of the Board of Invention and Research (Soddy 1916). Dominik may not have known of the actual design of Soddy's boiler, as the blueprints were dealt with as confidential, but it demonstrates Dominik's knowledge of even the more arcane areas of chemical study – Honigmann's locomotive had been out of use and largely forgotten by the 1930s – as well as his deep interest in all those topics that trained scientists, such as radiochemists, would have turned their minds to.

Before the protagonist of *Atomgewicht* is able to dispose of the entire load of the unstable radioactive element, some of it creates an explosion in a horrible, though not fatal, accident. The description of this moment is strikingly evocative of the images coming from real test sites of nuclear explosions in the 1940s, or of the H-bomb tests from the 1950s, especially the enormous explosion pressure:

Suddenly a blast swept over the yard. It was like an earthquake or a bomb blast. Like flickering, erratic lightning it came from the cracked windows in the wall of the factory workshop, the next moment crushing Clayton down, toppling Chelmsford and White over...

A hot gale rushed over those who had fallen down, surging against the factory buildings on

the other side of the yard, crushing the windows inwards, ripping the shingles from off the roof panelling and whirling them into the air... (Dominik 1934: 258)

By 1933 Dominik had already established an even more powerful image of a nuclear explosion. In his short story *Professor Bellians Tagebuch*, Professor Bellian lives as a recluse on a tropical island, studying atoms as well as the uses of atomic energy. When his nephew comes visiting, evil entrepreneurs, instructed by Bellian's former, corrupt assistant, follow him and his comrades, trying to steal the technology from the old professor. They incarcerate the young men on their ship and try to force Bellian to give his secret knowledge away. Knowing that the young men are safe aboard the ship anchored at some distance from the beach, he commits suicide by blowing up the whole island with a hydrogen bomb (Dominik 1933). The idea of nuclear explosions was not new. In *A World Set Free* H. G. Wells had already described the concept of atomic warfare. As Dominik would later repeatedly do, Wells based his idea explicitly on Soddy's work (Wells 1914: ix). Though in other cases Dominik even admitted to have copied from Wells, story wise, and while he clearly shares some of his stereotypes when it comes to character design, the depiction of the atomic explosion differs considerably from Wells' description, which imagines a kind of conventional, but enormous explosion, focussing on the unsettling psychological effects on the victims (*ibid.* 102–5). Dominik on the other hand concentrated more on the devastating effect of the blast on the environment and its sinister beauty:

... it rose like a black, sinister bomb cloud, like a volcanic eruption; one moment still a black cloud with lightning flashing through it, the other moment a sea of fire, expanding higher and higher into the bright blue sky, a sea of glaze, also devouring at the sides, in a single moment vast stretches of the green forest were charred and burned to ashes.

... With their mouths ajar and their eyes wide open, the three of them stared at the frightful, abominable, and yet in its dreadfulness so majestic and beautiful, spectacle. Then the lightning was followed by thunder. (Dominik 1933: 205–6, translated by author)

In his memoirs Dominik explicitly mentions an incident that inspired one of his other novels and also bears a striking resemblance to the depiction of the aftermath of the explosion described here; the so-called ‘Tunguska Event’ (Dominik 1941: 274). The enormous explosion, supposedly caused by an asteroid or meteor in 1908, that had devastated a few hundred square miles of taiga – wood- and swampland – had just been scrutinized and scientifically described by Russian geologist Leonid Kulik a few years before. The pictures of the detonation site show vast stretches of woodland deforested by a huge blast (Kulik 1927: 399). It is interesting though that Dominik again transcended the level of mere facts, emphasizing the sublime nature of the event, thus giving it a truly apocalyptic quality.

Conclusion

It has been pointed out by some authors that Dominik’s SF works are trivial, as they do not depict proper science, or even proper science fiction (Fischer 1984: 255–7). But one should not forget that his books were read by a lay audience and that Dominik was very well aware of what was most likely to please the reading masses. Instead of expatiating on the technicalities of the scientific methods appearing in his fictional texts, Dominik made use of hints and a few sketchy remarks, as if rearranging clippings from scientific texts, thus transforming them into something new. One might even say that both the triviality as well as the enormous success of Dominik’s science fictions derive from the same source. His intimate knowledge of contemporary natural sciences enabled him to invent scientific scenarios that were realistic, yet not too real; just bordering on the fantastic and thus also fulfilling the escapist requirements of popular, entertaining literature. The use of religious motifs seems to have added to the idea of science being something fantastic and even transcendental, deepening the impression of its all-encompassing social importance.

Besides, due to Dominik’s writings, by the mid-1930s a German-speaking mass audience numbering well into the millions was equipped with a fully-fledged arsenal of different concepts concerning the use of nuclear, or rather atomic, energy for various purposes, ranging from peaceful uses such as a ‘clean’ energy supply to its deployment in weaponry possessing a certain potential for mass murder and mass

destruction. Furthermore, the more imminent dangers of radioactive contamination which owed more to the material itself than the misuse of the means that could set free such tremendous amounts of energy by politicians and military leaders, had already found their way into widely-read SF works. So, when Otto Hahn, Lise Meitner, Fritz Straßmann and Otto Frisch discovered and explained nuclear fission at the end of 1938, an expectant public was ready to embrace their results and make use of them. No wonder that it would only be a few more years before the horrible prophecy of nuclear war should fulfil itself. The mainly fictional, pre-scientific concepts of atomic power – Dominik being, if not their only, then their best-known proponent – had such an impact that they even left their traces in the German language; the older usage of *Atom* as in *Atomenergie* – atomic energy – still prevailing over the more precise expressions such as *Kernenergie*, nuclear energy. ■

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