

Two Chessmen of Mars: Edgar Rice Burroughs and Eugène-Michel Antoniadi

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In the year 1922 two quite different authorities on the Red Planet were in the public eye for very different reasons: the writer Edgar Rice Burroughs and his chess-playing Martians from the famous John Carter of Mars novels, and the expert Mars observer and chess tournament player Eugène-Michel Antoniadi. But if chess was the common theme, the two men were absolute opposites in other respects. Burroughs was an outgoing businessman and a family man. He was a self-taught writer, but lacked scientific training. With his background in the US Cavalry, Burroughs was well-placed to describe his fearsome Martian warlords. Antoniadi was an expert in scientific matters and a skilled linguist. Although shy and retiring by nature, he possessed one close relative who was a bit of a terrestrial warlord. And as is often the case, the whole true story is stranger than fiction.

1. Different openings

This paper compares and contrasts the lives of two men, both intimately concerned with the Red Planet, who were drawn for very different reasons to two different versions of the game of chess: the American writer Edgar Rice Burroughs (1875–1950) and the French astronomer Eugène-Michel Antoniadi (1870–1944).

With Burroughs, the researcher is faced with a mountainous collection of published works as well as a detailed biography.¹ He was born on 1875 September 1 in Chicago, Illinois, and after schooling spent some time on a ranch in Idaho. At Michigan Military Academy in Detroit he won prizes for his horsemanship, after which he entered briefly into the US Seventh Cavalry.

Burroughs was ultimately disappointed with that sort of life and sought a different profession, even considering working as a cartoonist. Eventually he tried his hand as a businessman. Gold-dredging was just one of his ventures. But no job was ever very successful or long-lived.

Finally came a breakthrough. His biographer Irwin Porges writes how in 1911 Burroughs had set up an agency from which he sent out salesmen to sell pencil sharpeners on a commission basis. While waiting for them to come back he began to write the adventure stories that would later make him famous. The first

John Carter story was sold for \$400 (about \$10,000 today) to *The All-Story* magazine, and published in 1912. More would soon follow from that fertile pen.

For those unfamiliar with the John Carter series, a fine southern gentleman – John Carter of Virginia – is magically transported to Mars, where the locals call the planet Barsoom, and its two ‘hurtling moons’ Cluros and Thuria. Burroughs is probably better known as the creator of Tarzan, but he also wrote fictional stories about other worlds, including Venus and the Moon.

In stark contrast to Burroughs, Eugène-Michel Antoniadi came from a well-to-do merchant family in Istanbul (then Constantinople) who were part of the local Greek community.² Apart from the period from 1893 to 1902 when he was apprenticed to Camille Flammarion (1842–1925) as an assistant at the Juvisy Observatory near Paris, Antoniadi never had to work for a living.

There is plenty of his writing in print, including an *Atlas of the Mosque of St Sophia* in Istanbul and three marvellous astronomical books published in the 1930s, but his private life was kept very much hidden from public view, and the amount of useful archival material is comparatively small. Uncovering the details of his life has been a personal preoccupation of the author for over 30 years. The present paper will reveal more about his hitherto hidden life.

2. Eugène-Michel Antoniadi: the Mars observer who played chess

Antoniadi's interest in astronomy dated from an early age. By the time he was 18 he was doing serious observational work and sending reports of his observations for publication abroad, particularly to the French Astronomical Society. In 1893, aged 23, Antoniadi travelled to France to become Flammarion's latest astronomical assistant for a purely nominal salary; the main reward was that he could gain first-hand practical experience at an observatory.

Soon after joining Flammarion he was offered the directorship of the BAA Mars Section. In this latter position Antoniadi's skill as an observer and draftsman was admirably coupled with a brilliant analytical mind. Figure 1 shows Antoniadi as a young man of 24, soon after his arrival in Paris.

2.1. *A career with the planet Mars*

Antoniadi was quite opposite in character to the warlike Martians in the books of Burroughs. Although he could be extremely dangerous to any opponent upon the printed page, and would sometimes come across as prickly in his private correspondence, by his own admission he was actually of a retiring disposition, and was not even particularly keen on attending astronomical meetings. Whereas Burroughs had been heavily influenced by the artificial-looking Mars depictions of Giovanni Schiaparelli and Percival Lowell, a very different conclusion would be reached by Antoniadi during his long directorship of the BAA Mars Section.

In 1909, using the great 0.83-m refractor at Meudon Observatory, Antoniadi had enjoyed amazingly detailed views of the Red Planet that had cleared his mind of any trace of Lowell's spider-web canals. He was able to resolve the tiniest natural-looking details upon the surface, and as a true artist of long training was one of the very few people capable of drawing what he saw in a realistic and accurate manner. Figure 2 shows one of his rare colour drawings. From then onwards he considered the Martian question as essentially settled. What he thought were seasonal colour changes in the dark markings suggested to him the presence of vegetation;³ he probably thought that the atmosphere was too thin for intelligent beings.

Antoniadi was director of the BAA Mars section from 1896 until 1917, and he might have continued longer had it not been for a number of factors. Firstly, by 1916 he already considered that the Section had accomplished its original aim of accurately describing the true nature of the planet's surface, and in doing so had thoroughly disproved the canal theory. Antoniadi's substantial BAA *Memoir* covering the 1909 apparition, containing as many as one hundred illustrations and with a testament from no less a figure than E. E. Barnard printed on its front cover, had been published to much acclaim in 1915.⁴

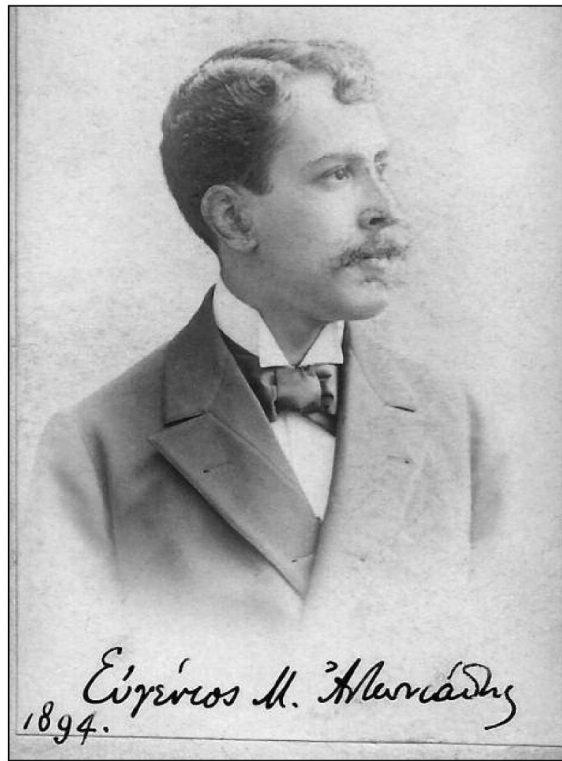


Fig. 1: E-M. Antoniadi on a signed *Carte de Visite* made in Paris in 1894. By kind permission of the British Astronomical Association. (BAA Archives)

In terms of the likely opposition to his findings, it was convenient that Schiaparelli had died in 1910 and that Lowell would follow in 1916. Secondly, after the opposition of 1911, the 'Grande Lunette' of Meudon – the telescope with which Antoniadi had made all his ground-breaking discoveries – had been out of commission.⁵ Thirdly, in 1917 a 'canalist' observer had complained to the then BAA President (the Astronomer Royal, Sir Frank Dyson) that Antoniadi had not properly considered his observations in preparing his recent *Mars Memoirs*. This was like waving a red rag to a bull, and the groundless charge so annoyed Antoniadi that he resigned on the spot.⁶

2.2. *A second career in chess*

After 1917, Antoniadi did not study the Red Planet so intensively for some years: not until 1924 would he make a spectacular return to the eyepiece. In those years he had little to do with the BAA apart from his personal correspondence with its founder, Edward Walter Maunder, and did relatively little astronomical writing.⁷ We shall now see that his interests had, at least for the moment, turned elsewhere.

Antoniadi had always been a man of private means. He played the post-World War I stock market, especially oil shares and in particular with the new company British Petroleum. He owned and rented out three houses in Istanbul and was able to devote his time

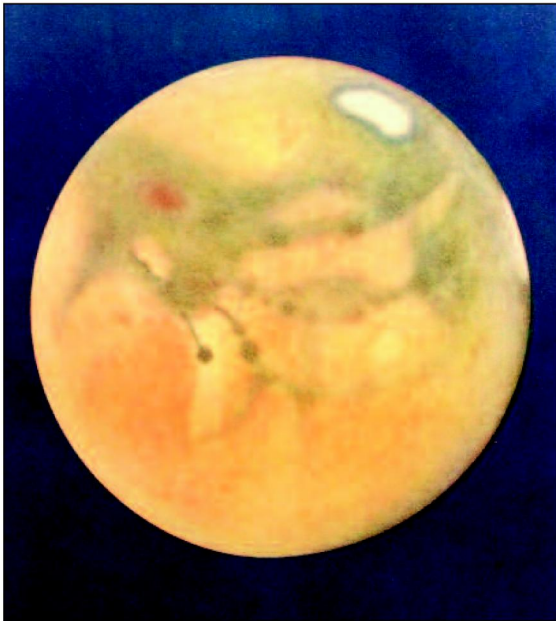


Fig. 2: A coloured drawing of Mars made with the 0.83-m OG of Meudon Observatory by E.-M. Antoniadi in 1909 October 11, showing the Solis Lacus or 'Eye of Mars' above the disk centre. Part of the Valles Marineris is also clearly shown. South is uppermost. (BAA Mars Section Archives)

entirely to his personal interests. One of his all-absorbing interests was chess.

Antoniadi had played for years, beginning before 1893 when he had lived in Istanbul.^{8,9} According to an interview, he started to play seriously only in 1903. An early high spot was at a tournament in Paris in 1907, when he came equal first with the top American Frank Marshall, a point ahead of the Russian-born Ksavery Tartakower. In the three-game play-off, Marshall won the first game and the other two were drawn. This event brought him to the attention of the *British Chess Magazine*, which published a rare portrait of the astronomer (Figure 3).

In 1922 he reached perhaps the peak of his chess-playing career when he won the international tournament at the Café de la Régence, Paris. Edward Winter has written some details of Antoniadi's playing in his chess website, and gives several examples of the games he played.¹⁰ One of these is reproduced in the box overleaf.

Antoniadi often expressed strong personal opinions about the game in print, some of which were regarded as idiosyncratic. He crossed swords with other writers in the chess-playing literature and, in contrast to the astronomical battles he waged with gallons of

Fig. 3: E.-M. Antoniadi in 1907, from the *British Chess Magazine*. See also reference 8.



printer's ink, in this field he appears to have come off the worse.

The height of the controversy was played out in 1922 in the pages of both *La Stratégie* and the *British Chess Magazine*. Later Antoniadi vanished from the chess scene so completely that one chess book published in 1932 by the British chess writer Philip W. Sergeant confidently asserted that he was dead.¹¹ Winter classifies him not as a champion, but as a 'near master'.¹²

It is extraordinary that both Burroughs and Antoniadi, who respectively wrote so much fact and fiction about the Red Planet, should have had their involvement with chess attract public attention in 1922, even if the coincidence was purely fortuitous, relating as it did to two completely different versions of the game played upon two contrasting worlds.

Did Antoniadi ever read Burroughs? If he ever did, I am sure that this highly critical man, whose literary style often far exceeded that of English native speakers, would not have enjoyed him. We know that he was not at all fond of the American style of writing, and he once admitted to his English friend T. E. R. Phillips: 'Reading the *New York Times* after Gibbon gives me nausea: the Americans are seriously damaging your splendid language.'¹³ Burroughs' prose, although it improved with each successive novel, was probably not to be compared with *The Decline and Fall of the Roman Empire*. But then, his books were not aimed at professors of English literature.

2.3. A warlord in the family closet

In total contrast to the retiring Eugène-Michel, a relative of the same Istanbul Antoniadi family was destined to become more closely associated with the art of war than any other figure of the late 19th and early 20th centuries. He was none other than the notorious arms merchant most commonly known by the name of Basil Zaharoff (Figure 4). Zaharoff, later Sir Basil, would rise to become the chief agent of the munitions firm Vickers, well-known for selling arms to both sides in any given war or conflict, and who earned the nickname 'The Merchant of Death'. Much of his time was spent commuting between East and West aboard the Orient Express, so much so that Sleeping Compartment 7 was permanently reserved for him. Much dubious business dealing was transacted on board, often involving bribes in the form of cigarettes wrapped with high-denomination banknotes.¹⁴

It was aboard that speeding express train on the night of 1886 January 7 that a dramatic episode ensued. Zaharoff boarded the train in Paris, to witness (and if at all

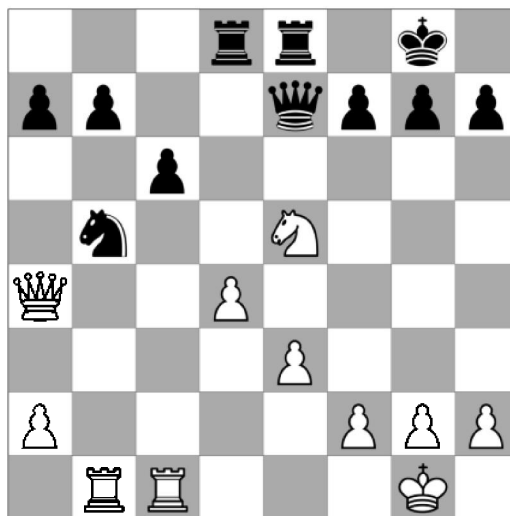
An Antoniadi chess victory

Chess historian Edward Winter^{8,9} cites the following tournament victory Antoniadi had in 1907 over the top-flight American Frank Marshall, who had played a world championship match against Emanuel Lasker earlier the same year. I hope the moves and comments will mean something to all chess players; sadly, I am not one of them.

Frank J. Marshall – Eugène M. Antoniadi
Paris, 1907 July 7
Queen's Gambit Declined

1 d4 d5 2 c4 e6 3 Nc3 Nf6 4 Bg5 Be7 5 e3 Ne4
 6 Bxe7 Qxe7 7 cxd5 Nxc3 8 bxc3 exd5 9 Bd3 Nd7
 10 Nf3 O-O 11 O-O Re8 12 c4 dxc4 13 Bxc4 Nb6
 14 Qc2 Bf5 15 Qxf5 Nxc4 16 Rf1 Nd6 17 Qc5 c6
 18 Rab1 Ne4 19 Qc2 Rad8 20 Ne5 Nd6 21 Qa4
 Nb5 22 Rxc6 Nxd4 23 exd4 bxc6 24 h3 Rd6
 25 Nxc6 Qe4 26 Rc1 Rg6 27 g4 h5 28 Qc2 Qf3
 29 Qb3 Qf4 30 Qc3 hgx4 31 Ne5 gxh3+ 32 Kh1
 Qg5 33 White resigns.

Antoniadi annotated the game on pp. 247–88 of *La Stratégie* 1907 July 24, and an English translation was published on page 169 of the 1907 September



The position after move 21

American Chess Bulletin. Tarrasch's notes to the game in the *Berliner Lokal-Anzeiger* were reproduced on pp. 187–8 of *Traité du jeu des échecs* by J. Taubenhaus (Paris, 1910). Tarrasch concluded: 'Apart from the erroneous opening, M. Antoniadi conducted the game in absolutely masterly fashion'.

<http://www.chesshistory.com/winter/extra/antoniadi.html>

Fig. 4: Basil Zaharoff in the regalia of the Knight Grand Cross of the Bath which he received in 1919. (Gallica/BNF)



possible to sabotage) a demonstration of a new machine gun by Hiram Maxim in Vienna. In a scene that would have done Agatha Christie proud, Zaharoff and his bodyguard narrowly prevented the murder of the Duchess Doña Maria del Pilar Antonia Angela Patrocinio de Miguero y Berente by her brand new but mentally deranged husband, Dom Francisco Príncipe de Bourbon y Bourbon.¹⁵

By the time Maria left the train in Vienna to stay as planned with Emperor Franz Josef at his Palace, Zaharoff had already fallen for her charms. Only upon the prince's death many years later inside a secure institution was Zaharoff legally able to marry Maria in 1924. He gave her the Casino at Monte Carlo for a wedding present.¹⁶ Zaharoff died in 1936, and any diaries or paperwork that might have assisted a biographer vanished with his departure.

And the precise Antoniadi connection? Zaharoff tried to wipe all traces of his past, and even to obscure the details of his birthplace. But from the extant records, it is quite clear that Zaharoff was Antoniadi's cousin.¹⁷ Because of their great difference in age, Antoniadi almost certainly would have adopted the Greek custom of referring to him as 'uncle'.

Antoniadi's surviving outgoing letters^{7,18} show that he was wary of his relative's financial schemes. Was the budding astronomer accompanied by his more worldly-wise cousin aboard that famous train when he first travelled to Paris in 1893?

3. Edgar Rice Burroughs, the inventor of Martian chess

Following his success with earlier novels, and with ten years of experience behind him, Burroughs penned his fifth book in the John Carter of Mars series called *The Chessmen of Mars*. This too was serialized in the *All-Story* weekly magazine before its subsequent appearance in book form in 1922.¹⁹

With the fictional Barsoom handily furnished with an unexpectedly rich atmosphere, flora, and fauna, John Carter's great skill as a swordsman upon the Red Planet elevates him (by the end of the third book) to the position of Warlord of Mars, and 'Jeddak' of the Kingdom of Helium. Ruling with him is his wife, the incomparably beautiful Dejah Thoris, a red Martian native. A lot of the novels involve evil Martians capturing Martian princesses, and the lengthy (and often long-drawn-out) business of fighting for their honour and returning them safely home.

The planet of Burroughs' novels is dying, kept artificially alive by an atmospheric production plant maintained by the red Martians. There are the legendary canals of Percival Lowell too, and the two principal tribes are of red and green Martians, with the red ones being somewhat better-behaved than the rest. (There are also white, black, and yellow Martians.)

If Antoniadi had ever ventured into the pages of the John Carter novels, he would have encountered red and green warlords that lived for more than a thousand years, religious cults, Martians hatched from eggs, sword-play on nearly every page, scantily clad princesses, squealing thoats to ride upon (controlled telepathically by their warrior riders), giant Martian banths (to be avoided at all costs), dried-up seabeds, ancient ruined cities, readily available brain transplants, and last but not least, Martians playing chess to save their lives.

3.1. *The Chessmen of Mars*

John Carter story number five, *The Chessmen of Mars*, involves the plight of Carter's daughter, Princess Tara of Helium, whose flying craft is driven far off course during an intense Martian storm. Burroughs' words sound so very much like Percival Lowell's, for up to this point hardly a cloud has been seen to disturb the deep blue Martian skies of the novels.

'Ominous clouds billowed restlessly and low ... From her window Tara of Helium looked out upon this unusual scene ... Dense clouds seldom overcast the Martian sky,' Burroughs wrote. Presumably he envisaged a dust storm, but it is not entirely clear. In the novel, the violent storm lasts several days. No doubt Burroughs had read some of Lowell's works, and in at least two of them Lowell does mention small dust storms.²⁰ Prior to 1922 there had been scant photographic proof, just visual reports. There had been some photographs taken during the final clearing of the 1909 planet-encircling storm, but these are hardly well known.²¹



Fig. 5: Edgar Rice Burroughs in 1933, by when he was a well-established writer with seven Mars novels to his name, including *The Chessmen of Mars*. (© Edgar Rice Burroughs, Inc.)

No real Martian storm, however, would ever have been as strong as the one that toppled buildings in *Chessmen*.

I wondered at first if Burroughs had been inspired by E. C. Slipher's recent photos of a Martian dust storm which were widely published at the time. The 1922 July dust storm around Margaritifer Sinus and Valles Marineris was the first to be clearly photographed from the Lowell Observatory at Flagstaff, and was large enough to be classed as a regional event.²² However, according to his biographer, Burroughs had already penned *Chessmen* in 1921, so 1922 merely marked the year of its publication. Indeed, Burroughs had been busily writing this well-planned book from 1921 January to November.

Burroughs was apparently a good chess player himself, and this highly inventive and original book was for me the most interesting reading of the whole John Carter series. The official Burroughs biography by Irwin Porges published in 1975 does not reveal the source of his Martian inspiration, but does show that he purchased 'serious' books. If the inspiration was not due to a work of Lowell's, it could just as easily have been the result of reading some article of Slipher's in one of the popular science magazines.

3.2. *About Jetan*

The title *The Chessmen of Mars* refers to the Martian form of chess, or Jetan, a game apparently beloved by all Martians but never taken as seriously as when played with live pieces in the great stadium in the king-

dom of Manator. In this story, Gahan of Gathol is forced to play for his life to save Princess Tara. On the front cover of the Del Rey paperback edition (and also our front cover) Gathan in an orange cape is battling against the black cape of the warrior representing the evil Jeddak of Manator. In the background, confined to her chess square, Tara looks on apprehensively. There is, of course, a happy ending. In another book, Jetan is used as a plot device to steal a Martian flying machine, when the attention of a guard in a rooftop garage is diverted by a game in progress.

To add a little detail about Jetan, its practical aspects are described by John Gollon in his book *Chess Variations*:

The game is supposed to represent (according to Burroughs) a battle between the black race of the south and the yellow race of the north. For this reason, the Jetan board is supposed to be placed so that the end with the black army is at the south, and the end with the orange army at the north. The board itself is of ten-by-ten squares, the squares being checkered orange and black.²³

The pieces have exciting names: Warrior, Padwar, Dwar, Flier, Chief, Princess, Panthan, and Thoot. The Princess is allowed a ten-square escape move once in the game. At the back of *The Chessmen of Mars* Burroughs gives the other rules. I leave the reader to go and look them up. Apparently it is a well-thought-out game, which many players enjoy.

In the Carter novel, a huge Jetan board was laid out in the arena at Manator: 'Here they play at Jetan with living pieces. They play for great stakes and usually for a woman – some slave of exceptional beauty... When a warrior is moved to a square occupied by an opposing piece, the two battle to the death for possession of the square,' wrote Burroughs. And of course each person is dressed according to the piece he represents. The idea of living chess pieces was copied by later writers.

3.3. Mapping Barsoom

Barsoom was the subject of a crude map sketched by Burroughs, published only in his official biography in 1975.²⁴ A much better job of relating its kingdoms and cities to the real Mars was finally done by Oberon Zell and Ralph Aeschliman,²⁵ and I am grateful to both of them for permission to use their map here in Figure 6 (facing page). Early attempts by fans of Burroughs to relate Barsoom to Mars often foundered on the astronomical convention of putting 'south up'.

In the entertaining *Encyclopaedia of Science Fiction*, *The Chessmen of Mars* (1922) and *Swords of Mars* (1936) are singled out for special praise by contributor David Pringle, who nonetheless cautions us: 'Although Carter's adventures take place on another planet, he travels there by magical means, and Barsoom itself is inconsistent and scientifically implausible.'²⁶ Burroughs, however, succeeded above all in transporting the reader 'to a glorious never-never land, exotic and dangerous'. And that was of course the attraction for his many loyal

fans: escapism was always the main aim, pure and simple, and the science was never a very serious consideration. In this respect, Burroughs succeeded brilliantly.

By the way, Pringle justly considers that the later and very different book *The Giant of Mars* was written largely by the son of Burroughs, and that the Venus adventures of his other interplanetary hero, Carson Napier, were 'not as stirring and vivid as the Mars series'.²⁷

3.4. Influences and adaptations

Through his stories Burroughs influenced an entire generation of new writers, particularly Ray Bradbury (1920–2012). Bradbury would go on to produce an equally enduring (and ethereal) Mars science fiction story, *The Martian Chronicles*.²⁸ In an awkward piece of timing, a TV adaptation was aired just after the Viking probes landed on Mars.²⁹ Bradbury was apparently not impressed with this adaptation.

If the young Burroughs is less sophisticated than the mature writer of *Chessmen*, we must recall that in those early days it was more a question of an impoverished young man writing for money, and moreover one who was often writing to a fixed word count for monthly magazine serialization. After all, if the young Charles Dickens had got away with it in the 19th century, so could the young Burroughs in the 20th century.³⁰

The Tarzan books quickly made it onto the silver screen. But the John Carter stories came to the modern big screen only in 2012 in a film directed by Andrew Stanton, and produced by Walt Disney Pictures.³¹ Loosely based on the first Burroughs Mars novel called *A Princess of Mars* the film was released 100 years after the first publication of the story, and starred Taylor Kitsch as Carter and Lynn Collins as Dejah Thoris. The film gained high praise for its action scenes and amazing special effects, but the online International Movie Database tells us that it received mixed reviews overall. Personally I think that Disney succeeded brilliantly. The link to the life of Burroughs himself was, I thought, especially cleverly done.

4. Different endings

As in the way they lived their lives, Burroughs and Antoniadi ended their days in very different circumstances. Having enjoyed a brilliant second observational career from 1924 onwards, Antoniadi in old age had to contend with the German occupation of Paris. He made his last observations of Mars during the very favourable opposition of 1941.³²

In 1943 the Germans had set up an anti-aircraft battery upon the terrace at Meudon Observatory, given its panoramic view of the sky and of Paris, and so the 0.83-m diameter object glass of the Grande Lunette was dismantled and hidden in the cellars of the building for safety.³³ In the event, the Observatory escaped

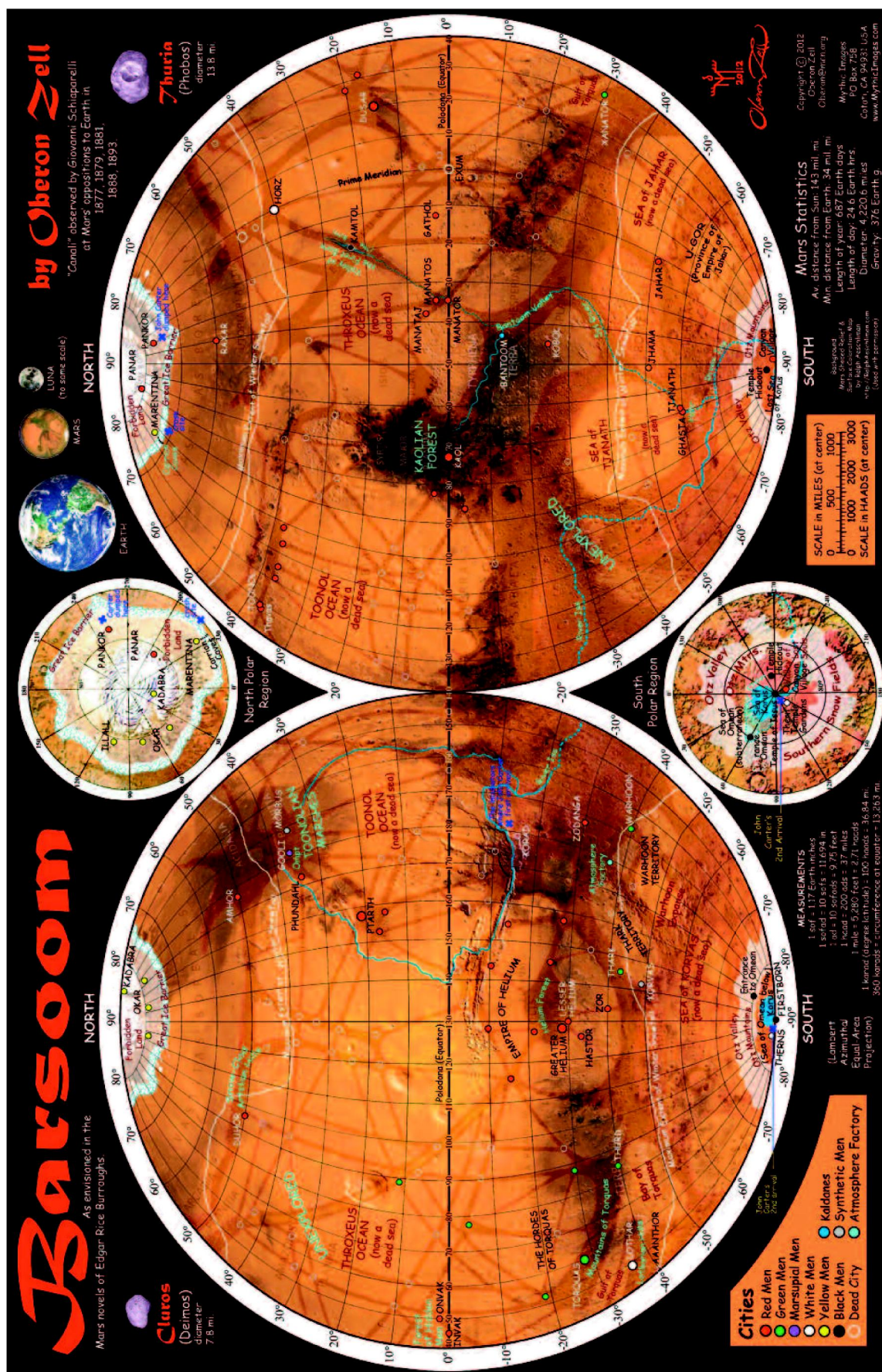
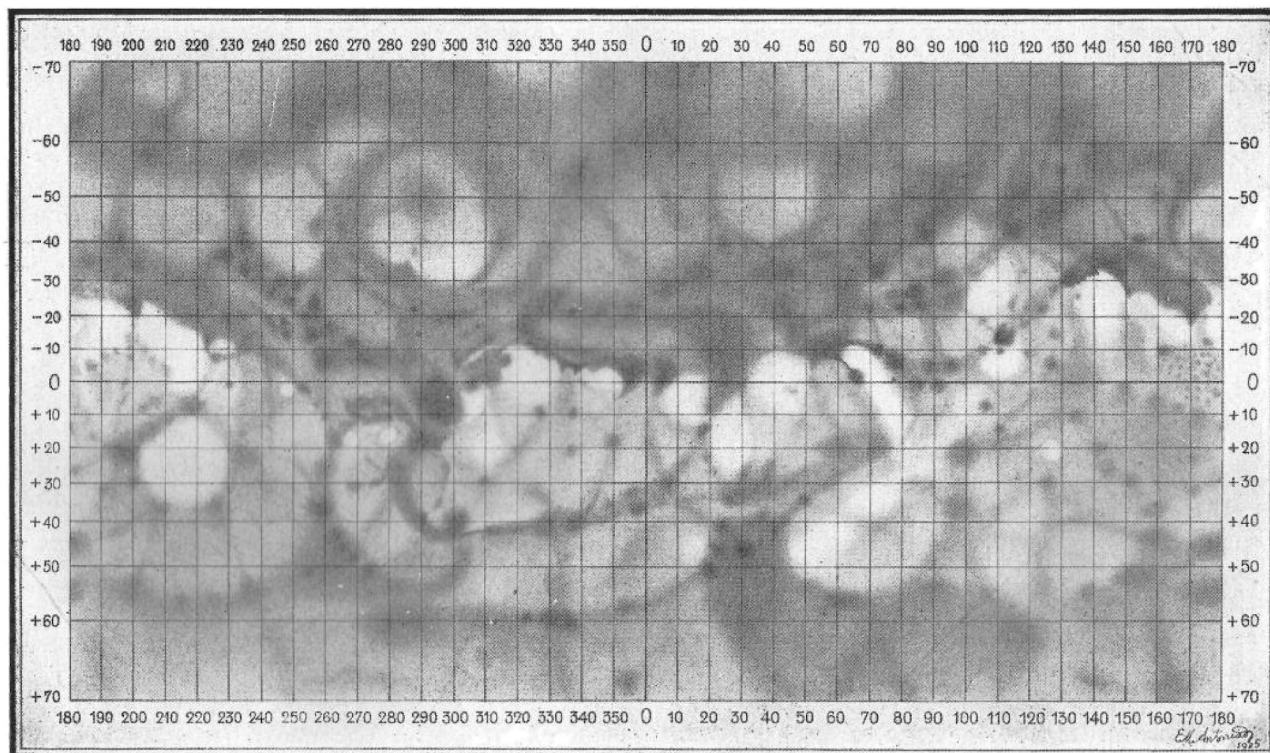


Fig. 6: Map of Barsoom drawn by Oberon Zell on a base map prepared by Ralph Aeschliman, and reproduced here by kind permission of both of its creators. North is uppermost.



CARTE GÉNÉRALE DE L'ÉTAT MOYEN DE LA SURFACE CHANGEANTE DE LA PLANÈTE MARS
montrant les formes et les tonalités moyennes relatives des diverses plages jusqu'en 1929.

*Fig. 7: E-M. Antoniadi's general map of the planet Mars, published in his 1930 book *La Planète Mars*. South is uppermost.*

the war unscathed, and the object glass was remounted in 1945.

Antoniadi was still seen in public in the summer of 1943³⁴ but clearly was in poor health during the particularly severe winter that followed, when he and his wife Katharine (1879–1952) would have been short of fuel and food. History records that the occupying Germans made only one delivery of fuel to Paris residents during the entire winter.

Antoniadi died in the hospital at No. 33 rue Saussier-Leroy in 1944 February, a short walk from his apartment at No. 16 in the same street. I lingered in that Paris street once, looking up at the windows of those apartments, and soaking up the local atmosphere. On 1944 August 25 the Germans surrendered.

Burroughs died at his ranch, Tarzana, of heart failure in 1950 March. By then he had built up a huge following of loyal readers, and had seen his books – particularly the Tarzan ones – immortalized in Hollywood films which showcased the ability of such memorable actors as Johnny Weissmuller. Burroughs wrote a total of 91 books and many articles. The public frankly wanted to believe in Martians, evil ones if possible, and writers and Hollywood film producers were only too happy to oblige.

If the 1940s had marked the arrival of the V2 and other rockets as weapons of war, the 1950s was a period of more positive development in rocketry, which would

culminate in the launch of Sputnik I in 1957. American rocketry had been catalysed by the capture of V2 rocket parts from Germany in the closing months of World War II. And as early as 1953, Werner von Braun would write his classic *Marsprojekt*, setting out an early mission plan for humankind to travel to the Red Planet by much more conventional means than those employed by John Carter.

5. Checkmate?

The US Air Force adopted E. C. Slipher's Lowell Observatory chart of Mars,³⁵ full of criss-crossed canals, as their reference map as late as the early 1960s, as did NASA for the early Mariner flights. This was the legacy of Schiaparelli and Lowell, the fantasy Mars that Burroughs had written so much about. But Antoniadi's far more natural-looking (and canal-free) chart in Figure 7, drawn after many years of work at the eyepiece,³⁶ had already become the Gold Standard throughout Europe.

History – as the final arbiter in any game – has judged Antoniadi's map to have stood the test of time far better than its romantic counterpart. On the other hand, the fantasy element in Burroughs' work is so strong, and so deeply involved with the human desire to find life beyond our own world, that it will surely endure for a long time to come.

References and notes

1. Porges, Irwin, *Edgar Rice Burroughs: The man who created Tarzan* (Brigham Young University Press, 1975, 2 vols).
2. McKim, Richard, 'The Life and Times of E. M. Antoniadi, Part 1: Astronomer in the Making', *J. Brit. Astron. Assoc.*, 103 (1993), 164–70; 'The Life and Times of E. M. Antoniadi, Part 2: The Meudon Years', *ibid.*, 103 (1993), 219–27; 'E. M. Antoniadi', *J. Brit. Astron. Assoc.*, 104 (1994), p. 8. French translations by A. Dollfus are also available: 'La Vie et l'oeuvre de E. M. Antoniadi, première partie: Un astronome en gestation', *Bulletin de la Société Astronomique de France*, 108 (1994), 308–14; 'La Vie et l'oeuvre de E. M. Antoniadi, deuxième partie: La grande lunette de Meudon', *ibid.*, 108 (1994), 341–50. Additional biographical information about Antoniadi family members and their relatives can be found at Christopher Long's family history website: http://www.christopherlong.co.uk/gen/argentigen/fg25/fg25_049.html
3. Antoniadi, E-M., *La Planète Mars* (Hermann et Cie, 1930).
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5. Dollfus, A., *La Grande Lunette de Meudon* (CNRS Editions, 2006). An English translation by the writer is also available: *The Great Refractor of Meudon Observatory* (Springer, 2013).
6. McKim, Richard, 'The resignation of E-M. Antoniadi, 1917: A century-long mystery solved', *J. Brit. Astron. Assoc.*, 127 (2017), 135–6.
7. The archives of Paris Observatory contain an outgoing Letter Book of Antoniadi's, which covers the late 1910s to the early 1920s. Its lone survival is probably due to the fact that when opened from the rear it contains an early draft of his classic book *La Planète Mars*.
8. See Edward Winter's Chess website: <http://www.chesshistory.com/winter/>
It was from this website that I discovered the article 'Mr E. M. Antoniadi, F.R.A.S.', *British Chess Magazine*, 27 (1907), 413–15. This is the source of the portrait in Figure 3. Winter adds: 'The article reported that Antoniadi had studied Staunton's Handbook in 1888 and, later, Morphy's Games (presumably Löwenthal's volume). In 1893 he went to France, winning several games of Sittenfeld and Janowsky, although losing the majority with both these players, and ten years later he began to study the game seriously.'
9. Winter, Edward, *Chess Facts and Fables* (McFarland & Co., 2005), contains three pages about Antoniadi.
10. Winter, E., 'A Chessplaying Astronomer', <http://www.chesshistory.com/winter/extra/antoniadi.html>
11. *Ibid.*
12. Edward Winter to Richard McKim, personal communications. It is possible, but not certain, that Antoniadi's peak as a tournament player had already occurred in or around 1907.
13. McKim, Richard, 'The Life and Times of E. M. Antoniadi, Part 1: Astronomer in the Making', *J. Brit. Astron. Assoc.*, 103 (1993), 164–70.
14. Cookridge, E. H., *Orient Express: The Life and Times of the World's Most Famous Train* (Penguin, 1980). Chapter 7 of this splendid book gives a thrilling summary of Zaharoff's life, although without naming the 'merchant family' in Istanbul that he was related to. Maria's husband was a cousin of the late Alonso XII of Spain. She had escaped into the corridor of the speeding express train, pursued by her dagger-wielding husband. In Vienna she was taken under the wing by the Empress Elizabeth ('Sissi').
One online source is useful, although currently without many citations: https://en.wikipedia.org/wiki/Basil_Zaharoff
There are also printed biographies of Zaharoff.
15. Cookridge, op. cit. (ref 14), pp. 113–14.
16. *Ibid.*, p. 119.
17. Christopher Long's family history website gives some relevant details about Zaharoff: http://www.christopherlong.co.uk/gen/argentigen/fg25/fg25_351.html
My own researches, primarily with the Paris Letter Book (ref. 7), first suggested the likely relationship with Zaharoff on his mother's side. Zaharoff's parents were Vassili Zaharoff and Eleni Antoniadi. I am grateful to Hellenic experts Christopher Long and George Vassiadis for most helpful discussions upon this and related topics.
18. In one outgoing letter (ref. 7) Antoniadi names Zaharoff's secretary as a Monsieur Trochain. I mention this only because I have never seen the name published.
19. I have referred to the Del Rey Science Fiction Series edition published by Ballantine Books, New York, in 1979. Ballantine is now part of the Penguin Random House group.
20. Lowell, Percival, *Mars as the Abode of Life* (Macmillan, 1908); *Mars and its Canals* (Macmillan, 1906).
21. The writer gave a complete survey of all ground-based telescopic observations of Mars dust storms up to 1993 in McKim, Richard, 'Telescopic martian dust storms: a narrative and catalogue', *Mem. Brit. Astron. Assoc.*, 44 (1999).
22. *Ibid.*, pp. 43–44.
23. Gollon, John, *Chess Variations* (Charles F. Tuttle Co., 1962), chapter 28.
24. Porges, op. cit. (ref. 1).
25. See the website of Oberon Zell for availability of prints of the Barsoom map: <http://academyofarcana.com/shop/maps/maps.html>
The ERB fanzine description of the mapping process is found at: <http://www.erbzine.com/mag39/3937.html>
And a Barsoomian Gazetteer is located at: <http://www.erbzine.com/mag39/3938.html>
Further Barsoom maps can be found at: <http://www.erbzine.com/mag48/4851.html>
The website of Ralph Aeschliman contains many fine solar system charts: <http://ralphaeschliman.com/>
26. Nicholls, Peter (ed.), *Encyclopaedia of Science Fiction* (Granada, 1979), 96–97.

27. *John Carter and the Giant of Mars* was published as late as 1940 and is written in quite a different style to the earlier Carter novels.
28. Ray Bradbury's engaging novel of the human exploration of Mars, *The Silver Locusts*, was first published by Rupert Hart-Davis in the UK in 1951, and this first title was by far the more appropriate. Just one of nearly 50 books he wrote, it was later released under the much better-known title of *The Martian Chronicles*. The novel spans the years 1999–2026, which at the time of publication were still in the distant future: 'They had a house of crystal pillars on the planet Mars by the edge of an empty sea, and every morning you could see Mrs. K eating the golden fruits that grew from the crystal walls, or cleaning the house with handfuls of magnetic dust, which taking all dirt with it, blew away on the hot wind.'
29. The three-part TV series based upon Bradbury's *The Martian Chronicles* was broadcast in 1980, and starred Rock Hudson and Gayle Hunnicutt.
30. Dickens was known for spinning out his plots to reach an assigned word count in his earlier works, which were sold to monthly magazines for serialization. If you read *Oliver Twist*, for example, you will find some early chapters drag badly, although the pace does hot up nicely towards the end.
31. It might have been clearer to potential viewers had Walt Disney Pictures inserted the word 'Mars' into the title of their action-packed 2012 film *John Carter*, or perhaps even used one of the original Burroughs book titles such as *A Princess of Mars*. The following may be useful:
[https://en.wikipedia.org/wiki/John_Carter_\(film\)](https://en.wikipedia.org/wiki/John_Carter_(film))
 and
<http://www.imdb.com/title/tt0401729/>
 It is to be regretted that so far there has been no sequel.
32. McKim, Richard, 'The Life and Times of E. M. Antoniadi, Part 2: The Meudon Years', *J. Brit. Astron. Assoc.*, 103 (1993), 219–27.
33. Dollfus, op. cit. (ref. 5).
34. Antoniadi was considered a rather unapproachable character by the young French astronomers in the early 1940s. But together with them he did attend the reunions of the SAF, where its members stood at Flammarion's tomb at Juvisy to mark each anniversary of the great astronomer's death. The reunion in the summer of 1943 (whose participants were, as was usual then, listed in the SAF *Bulletin*) was attended by Audouin Dollfus, Jean Dragesco, and Gerard de Vaucouleurs, all then in their twenties and destined to become as famous as Antoniadi. Years later I reminded them of this event, and each told me either verbally or by correspondence that no-one had dared to approach Antoniadi! Only de Vaucouleurs had ever corresponded with him, when Antoniadi had declined to attend a meeting being organized to test observational skills in a laboratory environment.
35. Slipher, E. C., *Mars: The Photographic Story* (National Geographic Society, 1962).
36. Antoniadi, op. cit. (ref. 3).

The author

In addition to his analysis of planetary observations as Director of the BAA Mars and Mercury & Venus Sections, Dr Richard McKim has written biographies of George Alcock, E.-M. Antoniadi, Robert Barker, W. R. Dawes, N. E. Green, Henry McEwen, Eliot Merlin, G. V. Schiaparelli, and E. L. Trouvelot. He edited the official histories of the BAA. Richard serves as BAA Archivist, is a past President of the Association, and a recipient of its Merlin and Goodacre Medals. He is also a Flammarion medallist of the French Astronomical Society and has a minor planet named after him. A retired chemist, Richard enjoys sketching, collecting books, and playing first clarinet for the Rusty Players of Oundle.