Henry McEwen of Glasgow: a forgotten astronomer?

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Part II: Cambuslang (1916–1955)

The First World War, and Cambuslang

In Part 1,[1] we tried to reconstruct McEwen's early days in Dyke, Moray, and his training as an engineer. We discussed how he came to direct the BAA's Mercury & Venus Section, and described his early observational work carried out from the heights of Mount Florida, Glasgow.

In 1916, in the middle of the First World War, McEwen and his family moved to Cambuslang (population *circa* 25,000),[2] a small town south of the Clyde, and some five miles SE of Glasgow. McEwen's move was surely driven more by professional circumstances than by a personal search for better skies, but nevertheless it turned out to his advantage. Describing local history, Ian Cormack[2] writes that the Clyde's Mill Power Station was erected there in 1916 on the site of the former Clyde Valley Power Company Station, and that in the 1950s it was the largest in Scotland. Well before 1916 McEwen had become Chief Draughtsman with the Glasgow Corporation Electricity Department. Some G&WSTC *Yearbook* entries show that he continued to gain promotion: 1921/22 – 'Technical Engineer'; 1925/26 – 'Electrical Designer'; 1927/28 – 'Assistant Constructional Engineer'.[3] McEwen was designing generating equipment. The Corporation's archives do not list him in their salary records until 1920, when he appears as 'Principal Assistant' under 'Engineers, Constructional' on a salary of £300. He retired in 1933 on a final salary of £550. For these years this would have been very good pay.

Figure 1. 'The Swings': a playground for children in Kirkhill, with the old Parish Church in the background. Holmhill Avenue is located about six hundred metres to the right. (Reproduced here by kind permission of Ed Boyle, webmaster of a local history page (http://www.boyle.connectfree.co.uk/Cambuslang/).)

Figure 2. Two 1993 photographs from 13 Holmhill Avenue, Cambuslang. *Top:* Dawn over Kirkhill Parish Church. *Bottom:* The view from the upstairs window facing southwest through which McEwen observed Mercury and Venus in the evening. These views would not have been substantially different in McEwen's day. *(Courtesy Mr M. C. Nicol.)*

The McEwens' new address was 'Rosebank', 13 Holmhill Avenue, a street situated on high ground in the Kirkhill district of the town. (No doubt the house was named after that of Henry's mother: Rosebank, Fife, though there are other local uses of the name.) The house was newly built: a typical six-room semi-detached stone house, with a small garden. The front garden faces east and the rear faces west.[5] It is not far from the old Kirkhill Parish church – a key element in the Scottish Evangelical Revival of the 18th century – and I understand from local sources that the area 'up the hill' was regarded as the most affluent area of the town. We give a picture of Kirkhill and its church in 1952 to show some 'local colour', and the attractive stone-built houses in that area (Figure 1).[6] We can also illustrate the panoramas McEwen would have enjoyed from the upstairs windows of his home (Figure 2).

No doubt the war years were an especially busy time for McEwen professionally; by 1916 there was a desperate national shortage of engineers (and able-bodied men gener-

ally). Indeed, for the winter opposition of Mars in 1917–18 McEwen was too busy with war work to do much observing, as he explained to W. H. Pickering.[7] Nonetheless, McEwen pursued Mars actively, perhaps realising that many regular observers would be away from their instruments.

Figure 3. William H. Pickering wearing his straw hat in Jamaica, probably in the 1920s. (Courtesy Prof. Howard Plotkin, who obtained it from Pickering's daughter, Mrs Esther Pickering Harland, now deceased.)

The BAA Scottish branches

There were originally two BAA Scottish branches, but the one based in Glasgow (whose origin was described earlier) was to be the longest-surviving, continuing independently after 1954 as the Astronomical Society of Glasgow.[8] Its meetings mostly took place at the Royal Technical College, Glasgow, where McEwen had trained to become an electrical engineer.[9] McEwen was often on the Branch committee, either as a member or as Vice President, and for many years – until the late 1930s in fact – he lectured once or twice a year on some aspect of astronomy. Branch meetings were reported in detail in the *Journal*. In the early days the BAA also had an East of Scotland branch based in Edinburgh, and McEwen lectured on Mars there on 1901 January 19, just two nights after addressing his local branch about Saturn.

The West of Scotland Branch, like its London parent, held occasional *Conversaziones*. On such an occasion in 1909, McEwen described his recent Jupiter observations, whilst in 1924 it is recorded that he lent a globe of Mars and also displayed 'a wonderful series of drawings of Mars and Venus.'[10]

In 1919–21 McEwen served two sessions as Branch President, and his opening Address was about Venus. In this respect McEwen, on home ground so to speak, was able to overcome the problem of a speech impediment, for which he had had an operation as a boy. Ovenden's obituary for McEwen noted that this handicap had caused him some embarrassment at meetings.[10] McEwen's retiring Address was entitled 'An outline of the genesis and physical history of the Earth'.[11] It had been an especially active session, with visits to local observatories and a tour of Glasgow's sundials, as well as the usual extensive lecture programme. It must have given McEwen much pleasure to have presided over a lecture by the BAA's founder, Walter Maunder, in 1920 October.

McEwen apparently ceased to take part in the affairs of the Scottish branch (as it was known from 1937 onwards) after World War II,[12] but we must remember that in 1944 he was 80 years old. The *Journal* shows that the 1943/'44 session was to be his final one as a Councillor.

McEwen, Pickering and Venus

In 1920 McEwen received a communication from Prof Pickering of Jamaica[13] (Figure 3) who surprised the astronomical world with the claim that Venus rotated on a highly inclined axis in a period of 68 hours. McEwen quickly made blueprints of Pickering's chart for some of the Section's members, and published it in the *Journal* (Figure 4).[14] Very little could be confirmed by the Section members (who included A. Stanley Williams[15] and W. H. Steavenson). Indeed, only the shadings about the cusps were recorded with certainty, and one cannot say that any support for Pickering was forthcoming at this time.

The history of the first half-century of the BAA[8] notes how papers by McEwen were a frequent occurrence in the *Journal* in the late 1920s and throughout the '30s. The evening elongations in 1924 and 1927 were the most favourable in the eight-year 'cycle' of elongations, identical in presentation to the recent elongations in 1996 (or 2004) and 1999 (or 2007), and McEwen and other members of the Section made good use of them. Indeed, in 1924 there were some unusually dark markings visible in the Venusian atmosphere.[16] In the 1920s and '30s, McEwen's main BAA collaborators were R. L. T.Clarkson,[17] W. H. Haas (from 1937)[18] and M. B. B. Heath.[19] Of all these well-known amateurs, Heath made by far the longest series of observations of the inner planets.[20]

In 1924 April, personal observations of the apparently changing position angle of a diagonal light area near the terminator provided McEwen with more definite support for the Pickering theory, and writing up the work in the *Journal* in 1926[21] he seemed confident that he had confirmed Pickering's period and rotational axis. But B. M. Peek and W. H. Steavenson, though supporting the idea of a highly inclined axis, did not agree about the period, and published their work independently.[22] Tantalisingly, Steavenson suggested a period of 8 days, roughly twice the accepted value. McEwen's later analyses of the Section's 1927 work[23] are

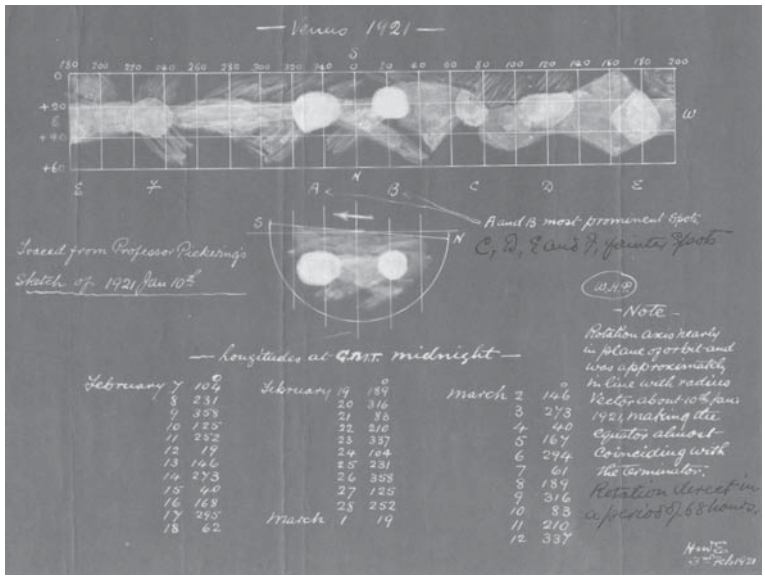

Figure 4. Blueprint of Pickering's Venus chart made by McEwen. (Courtesy R. M. Baum.) This was reproduced in the *Journal* in 1921: see Ref. 14.

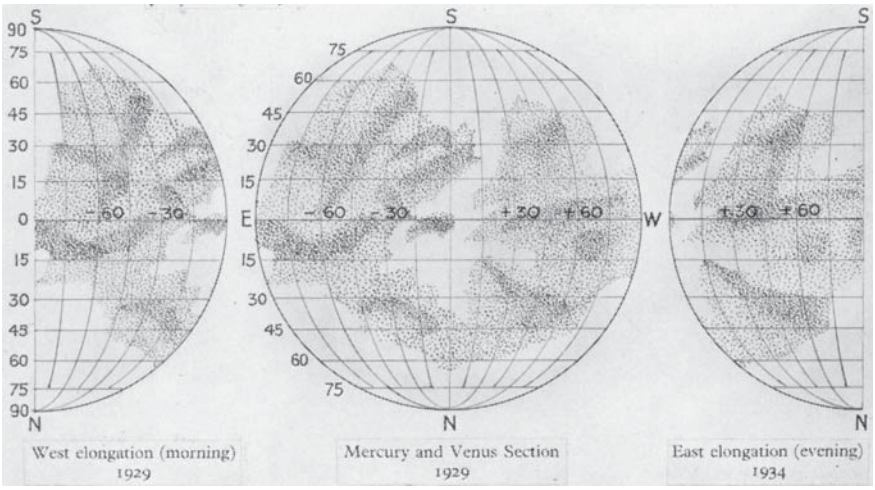

Figure 5. Charts of Mercury by H. McEwen from BAA observations. (Reproduced from Ref. 29; this and Figure 6 were mapped using Mollweide's equal area projection.)

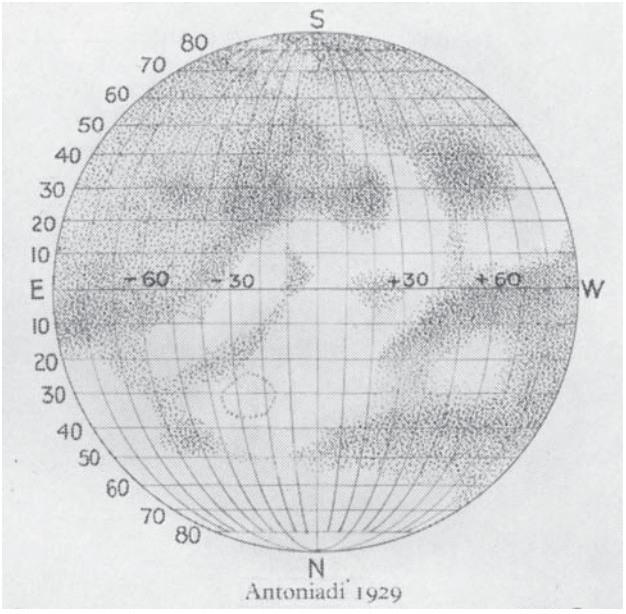

Figure 6. Chart of Mercury by E. M. Antoniadi from observations with the 83cm OG at Meudon. (Reproduced from McEwen's copy published in Ref. 29.)

vitiated by this bias in favour of what turned out to be a mistaken hypothesis. In 1927 McEwen discovered that the changing brilliance of the background sky could give rise to the illusory rotation of markings at the terminator.[24] 'Doubtless this was responsible, in the past, for the 23–24 hour rotation periods….' Thus he had finally abandoned his own early support of a rotation period of about 24 hours. One could also cite proper motions and rapid changes in the visible cloud features themselves as sources of confusion over more than one atmospheric rotation, as did Steavenson. But until the 1930s McEwen was supportive of the Pickering period and axis.

McEwen corresponded with the spectroscopist V. M. Slipher and planetary temperature expert Carl Lampland during the period 1923–'27.[25] With Slipher he exchanged letters about the difficulty of determining Venus' axial rotation period by spectroscopic means, and the two also exchanged papers. Slipher also sent him Mars photographs for use at a lecture to the West of Scotland branch.

The mapping of Mercury

The year 1929 was to be a highly significant one. Both Antoniadi and McEwen were mapping Mercury, and they independently published their charts in the 1928–'29 volume of the BAA *Journal*. Antoniadi's chart, a preliminary version of his final map in *La Planète Mercure*,[26] appeared in part 3,[27] and a series of papers by McEwen based upon the Section's work appeared in parts 1, 4 and 8 (with his BAA Mercury map in part 8).[28] At that epoch no-one had yet challenged the view of Schiaparelli that Mercury's rotation was synchronous, and performed in 88 days. McEwen stressed the difficulty of measuring such a slow rotation on a tiny disk, but his own work since 1909 had given him confidence in the long period. Both Antoniadi and McEwen delineated very broad albedo features on Mercury, nicely corresponding to the details of Schiaparelli but with less regularity or narrowness. It had taken McEwen three decades to accumulate enough observational work to confidently draw up the BAA chart, but the result was well worth the wait. Both observers would add to their work later; Antoniadi in 1934[26] (Figure 6) and McEwen in 1936[29] (Figure 5). The final maps are reproduced here. Given the difficulty of the observations, there is essentially no material difference between them, as McEwen truly commented.

For the BAA chart, McEwen had drawn mostly upon his own work and the 1890s drawings by Major P. B. Molesworth of Sri Lanka (then Ceylon).[30] Paper 2 in his 1928–'29 Mercury series included a plate with examples of these. McEwen once wrote that his drawings taken at an evening elongation in 1923 were the most interesting he had made up till that time.[31] To McEwen the colour of Mercury most often appeared chrome yellow, though he realised that the variable depth of the blue sky background affected the perceived tint.[32] To try to appreciate the appear-

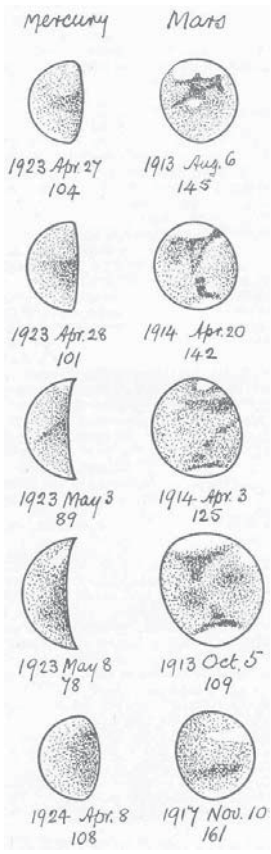

Figure 7. Mercury and Mars drawings by McEwen illustrating the greater complexity and contrast of the martian markings. Images are paired for equal apparent diameters. Numbers beneath drawings are distances from Earth in millions of miles. Reproduced from *J. Brit. Astron. Assoc.*, **39**, 27 (1928)

ance of Mercury's markings compared to those of Mars, McEwen made a valuable series of observations of the two planets, which included their 1923 May conjunction, publishing comparative disk drawings for similar apparent diameters (Figure 7).[33] Antoniadi warmly praised the BAA's independent Mercury chart, as well as McEwen's work with a small aperture.[34]

Lunar and hermographic geology

McEwen's interest in geology (cited in Part 1) extended to planetary geology, then a very new subject in those pre-Space Age days. McEwen wrote about the probable geological history of the Moon, and in this respect his work has been noticed in some quarters. Writing in the 1968 *Yearbook of Astronomy*,[35] G. N. Katterfeld acknowledges McEwen as one of the authors who first subdivided the ante- and post-mare stages of lunar history into smaller periods of growth, starting with Hommel (1919) and ending with Shoemaker and Hackman (1960, '62, '63). Specifically Katterfeld (*op. cit.,* page 189) attributes 'Stage III' in the ante-mare period to Philip Fauth (1907), Hommel (1919) and McEwen (1929). The full reference is not quoted but it clearly corresponds to the third of McEwen's three Mercury papers in the BAA *Journal* of that year, in which he compared the present aspect of Mercury with a hypothetical past phase of the Moon.[28] In the same paper McEwen compared the dark areas on Mercury with the lunar maria, though from their sometimes obscure appearance he considered that basaltic outflows might be occurring contemporaneously. (It is likely that in those years that McEwen failed to recognise the classic Schiaparellian markings – whose absence he took as evidence of their obscuration – he was actually viewing other, less familiar longitudes.)

McEwen obviously admired Pickering's lunar work, and praised it in the pages of the *Journal*.[36] Axel Firsoff[37] also corresponded with McEwen about lunar matters. In a chapter from his *Strange World of the Moon* dealing with lunar colours, he quotes from a private letter in which McEwen had written of the occasional purple colour 'resembling heather in bloom' in some craters. McEwen became interested in the Moon again later, in connection with the nature of the bright areas of Mercury.

The interior planets in the 'thirties

Antoniadi and McEwen collaborated a good deal in the 1930s, though there is no evidence that they ever met. Antoniadi's Venus drawings were published in the *Journal* in 1934 and from this time McEwen[38] began to gravitate back towards the long rotation period which the Greek astronomer had advocated[39]. Antoniadi also convinced McEwen that the latter's micrometrical measures of the crescent phase of Mercury in 1934 were affected by diffraction and irradiation in his smaller instrument and probably did not provide the supporting evidence of a Mercurian atmosphere which their originator had initially postulated.[40]

Using his bifilar micrometer, McEwen made hundreds of measures of the fraction of the illuminated disk of Venus at the E. elongations of 1919 and 1924, and the E. and W. elongations of 1927. In 1938 he discussed these data.[41] This work showed conclusively – in a way that visual estimates could not – that the phase anomaly (or 'Schroeter Effect') was not limited to the dichotomy period, but was a general feature except at the smallest phases. He freely based his explanation of the anomaly upon the work of Arthur Clayden in 1909,[42] who had considered that the clouds must slope upwards towards the planet's terminator. McEwen speculated upon the direction of the planet's rotation from the evidence that the magnitude of the phase anomaly was not the same at eastern and western elongations.

A few years prior to this phase anomaly work, McEwen noted in the 1932 Council Report that new measures of the 'luminous gaseous shell' around Venus near inferior conjunction – presumably from the length of cusp extension – led to an atmospheric depth of about 100 miles. This is a very good estimate, and much closer to the truth than his 1900 estimate of 400 miles cited in Part 1.

Martian studies, 1894–1926

Apart from Mercury and Venus, McEwen's other great astronomical interest was the planet Mars. 'When Flammarion's *La Planète Mars*[43] was published [in 1892], I bought a copy and studied it – a book well worth the moderate price, 9s.'[44] His early work suggests satisfaction with Schiaparelli's charts and views of several of the 'canals', though we must remember that a 5-inch OG is a modest instrument for Mars. In 1894 A. Stanley Williams published in *The Observatory* magazine[45] a summary of his personal observations of widespread obscurations of the surface of the planet, due to a large regional dust storm covering Mare Cimmerium and environs.[46] He also included valuable and unbiased notes contributed by McEwen.

In later years McEwen collaborated successively with Mars Section Directors Antoniadi, Harold Thomson and W. H. Steavenson during the apparitions from 1911 to 1926 inclusive.[47] McEwen often made the first and last observations of the apparition, as well as the greatest number of drawings. Quite a few of his drawings appeared in the *Journal* and *Memoirs*. These Directors especially valued McEwen's careful notes and colour estimates. In 1917–'18 both McEwen and Thomson found the Syrtis Major bluish ('delft-blue' to McEwen) but Casius brownish ('vandyke-brown') in comparison: this accurately noted north-south colour difference – partly attributable to the scattering effects of equatorial cloud, and partly due to mineralogical differences between the northern and southern maria – has often been recorded in aphelic apparitions both past and present. It

shows that McEwen really could make reliable records of relative planetary colours.

Thomson described the drawing techniques of Section members, noting at the same opposition that McEwen used coloured crayons.[48] Furthermore, McEwen was one of the few observers to attempt the difficult technique of taking transit timings of the martian features.[49] As we have noted already, McEwen contributed Mars observations to Pickering's so-called 'International Mars Group'.[50] An example of McEwen's Mars work appears in Figure 8.[51]

McEwen the man

As we have noted, McEwen chose not to retire from employment until 1933, when aged 69. There are probably two reasons why he stayed at work beyond the minimum retirement age. First, and foremost, the State retirement pension provided only 10s a week (£0.50), representing a huge drop in living standards, but it was all that was available. In these years of the Great Depression, in the late 'twenties and early 'thirties, times were very hard for most working-class people, especially in the many dockyards along the Clyde. And in later years, the pension failed to keep pace with the rising cost of living.[52] There was a second, more personal reason for staying at work. Retirement must have seemed a particularly bleak prospect, because two years previously, on March 14, Henry's wife Sarah had died at the early age of 67 from the effects of heart disease. That her loss was a source of great personal grief to Henry is evident from a letter of that time.[53] It is from this period that McEwen really began to throw himself into his writing, many lengthy theoretical and observational papers being contributed to the *Journal*, surely part of his own way of dealing with personal loss. The *Journal* of 1930/'31 contained three of his contributions; that for 1931/'32 contained seven.

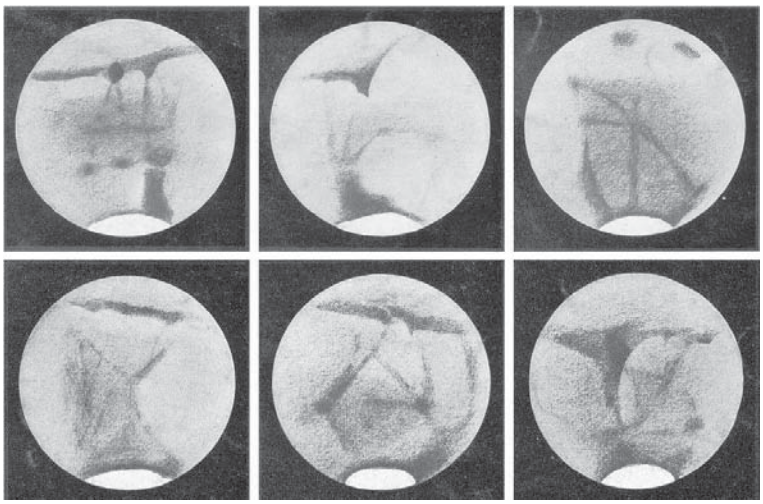

Figure 8. Drawings of Mars in 1916 by McEwen with 5in OG, ×160, 180 and 200. The disk diameter was 13–14 arcsec. The originals (which were drawn in crayon), Pickering had noted, were in colour. *Top row, left to right:* Feb 20, CML= 4°; Feb 16, CML= 64°; Feb 9, CML= 124°; *lower row, left to right:* Feb 4, CML= 184°; Jan 28, CML= 230°; Jan 22, CML= 303°. (Reproduced from Ref. 48.)

From Cambuslang we actually have a description of how McEwen must have appeared in his seventies and later. According to the reminiscences of a neighbour (then a youth) who lived at 7 Holmhill Avenue,[54] McEwen was a short man (about 5 ft 2 in (1.57 m) tall), of broad build, with a round, full face, bright eyes, and sandy hair. He looked somewhat odd. He usually wore a double-breasted jacket and was not smartly dressed. McEwen spoke as if he had a cleft palate. Locally he was known as 'the man with the gun', because that was how he looked to local residents when observing through the window! Indeed, the neighbour recalled having seen a large brass telescope in an upstairs front window.

The obituary notice for McEwen recorded that his bookshelves 'were well stocked with works on geology and archaeology',[52] and that he had been a keen player of bowls and golf.[55] Indeed, he copied out his 1926 Mars observations for Steavenson whilst on holiday at the birthplace of golf – St. Andrews – the following September.[56] Did he play the famous course? Locally in Cambuslang, McEwen had access to the nearby golf clubs of Cambuslang and especially Kirkhill, the latter laid out in 1910 by the famous Open Golf champion James Braid.[57] But McEwen was never formally a member at these clubs.[58] There was also (and still is) a local bowling club. It again appears he was never a member there, so he must just have played for his own enjoyment.[59]

World War II

At the outbreak of WW2 in 1939, McEwen had just celebrated his 75th birthday. By 1938 he was working upon a Mercury and Venus Section *Memoir*, intended to summarise observations up to the end of 1937, but work upon this project was shelved during WW2 and was not restarted later. Fortunately he still possessed the observing zeal to make use of some of the favourable wartime elongations of the inner planets. McEwen published just one paper during the period of hostilities, an observation to measure by trigonometry the magnitude of the 1942 September partial solar eclipse. Unusually, there was an observing companion, John J. Ross, a Glaswegian BAA member of long standing, and McEwen's successor as Branch President.[60] The two old friends had measured other eclipses together, as well as timing occultations of stars by the Moon.

Cambuslang came through the war safely, but the Clyde area in general – with all its heavy engineering, industry and shipping – was a major target for the Luftwaffe. Thus in 1941 March, heavy air raids all but destroyed the town of Clydebank a few miles away, and in May the port of Greenock was severely damaged in a raid by 250 German aircraft.[61] In addition to the constant nocturnal dangers, the population suffered from the nuisances of alerts, shelters, gas masks, restricted travel, and the rationing of food and clothing.

Mapping Venus in the 1940s

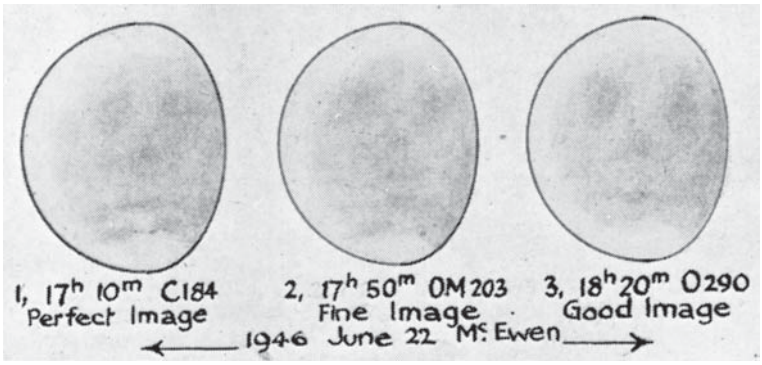

Figure 10. Venus drawn by McEwen (5in OG). 1946 June 22 at 17h 10m, 17h 50m, 18h 20m. These three successive drawings show complex details, likened by McEwen to the lunar maria. (Reproduced from Ref. 62.)

The 1940 eastern elongation of Venus had proven to be an unusually favourable one, and in 1947 McEwen published in a paper *Mercury and Venus I* (intended as the start of another of those series of papers of which he was so fond) a summary of the Section's results. The 1940 series included one very peculiar observation, on April 17, of a group of small bright spots on the planet's disk[62] (Figure 9). Richard Baum has discussed this sighting in more depth elsewhere.[63] McEwen may not have personally believed that the bright points seen on that occasion were due to lofty mountains, though this was the only interpretation he quoted, due to the 19th century astronomer Trouvelot.

On 1946 June 22 McEwen experienced a rare view – under absolutely perfect seeing conditions – of complex Venusian details, and was able to record their appearance as the seeing quality eventually became degraded (Figure 10). Thus there are three grey circular patches and a complex ochre-coloured band south of the edge of the bright north cuspidal area. The latter band was interrupted by a bright area. That evening's observation led to an exceptionally long two-page entry in his MS. notebook. Perhaps he considered this to have been a 'revelation peep' – a possible view of the planet's real surface markings dimly seen through its thick atmosphere? Remarks in the 1946 Report of Council[64] make it plain that this was truly McEwen's view. And on June 24 his MS. notebook records two circular patches again. Thus by 1946 we find him accumulating evidence to support the slow – possibly captured – rotation of Venus. This idea had begun to find favour with McEwen in the late 1930s in connection with his work on the phase anomaly,[41] and in 1940 he wrote that certain markings on Venus 'recur at intervals depending in some way on the relative heliocentric longitudes of Venus and the Earth.'[65]

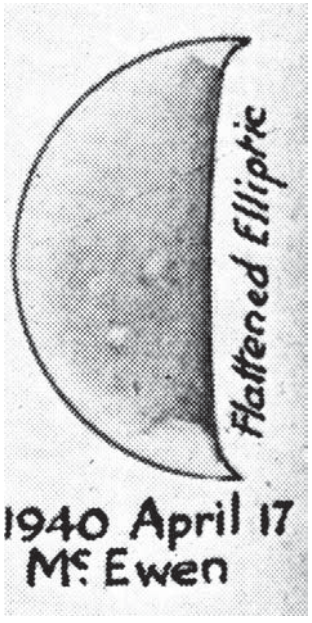

Figure 9. Venus drawn by McEwen (5in OG), 1940 April 17. Note the three small bright points, a most unusual view. (McEwen's notebook for this time is unfortunately missing, so this is reproduced from Ref. 62.)

About this time McEwen first had the idea of drawing a chart of the possible true surface features of Venus. This was not an original idea, for it had already been done in the 18th and 19th centuries, and more recently in France in the 1930s. In the early 1950s, professionals such as A. Danjon and A. Dollfus (in his early work) were also reaching the conclusion – through the repetition of similar albedo patterns from day to day – that the planet's surface markings were dimly visible, though much distorted by a deep atmosphere. Indeed, Dollfus compiled a chart based upon the photographic superimposition of groups of drawings made over periods of several days.[66] Another chart is easily available in the *Larousse Encyclopaedia of Astronomy*.[67] But Venus had again misled her observers through the general similarity of its atmospheric markings: witness the repeated, now classic, 'Y' and 'C'- shaped halftones that are so characteristic in good ultraviolet photographs.[68] In deciding to map Venus, McEwen had certainly been influenced by Antoniadi, but not by Dollfus, for it seems unlikely he ever saw the latter's papers in French journals in the 1950s, and furthermore the two never corresponded.[69] In supporting the slow rotation McEwen was perhaps unconsciously returning to the widely held late 19th century view.[70]

We can trace the development of McEwen's Venus charts in the pages of BAA publications. Although after 1947 no more of his Section Reports would grace the pages of the *Journal*, McEwen continued to describe in his annual Council Reports the observations received. In 1948 he was confident enough to write:[71] 'Usually the terminator is shaded between bright north and south cuspidal areas of which the larger north is often bordered by a defined shade band. A darker part of it appears separated from a lighter continuation by a light spot, *of a stability suitable for adaptation as a Cytherean zero meridian*.' [My italics! – RJM.] Clearly the impressions from 1946 June had recurred. McEwen reiterated these points in an updated Section Programme: '...certain shadings, disguised somewhat by changing forms, have recently asserted themselves by recurring visibility, sufficient to suggest a provisional zero meridian.'[72] A year later he added: 'The observations and drawings ... bring nearer a possible map of the planet'.[73] McEwen was at this time working upon his papers *Mercury and Venus – II* and *III*, the former of which would contain the chart of surface features upon Venus, and the latter of which was to be titled 'Drift of Cytherean markings'.[74] Preliminary Venus charts in two hemispheres (on Mollweide's projection) were actually sent for display at the BAA Exhibition Meeting of 1950.[75] Did he distribute any copies? None could be found by the writer.

Mercury's atmosphere and surface, 1944–1953

In his 1947 Section Report[62] McEwen cautiously speculated that he and M. B. B. Heath in 1944 had obtained rare evidence of temporary veiling of the Mercurian markings, thus supporting Antoniadi's ideas.[76]

One very remarkable reference to Mercury occurs in the 1948 Report of Council:[71] 'The Director, when opportunity offers, observes the waxing and waning of lunar rays and compares them with the changing light areas on Mercury; but he has as yet made no drawings of these interesting and puzzling phenomena'. Thus by implication he was considering that the bright patches on Mercury could correspond to centres of rayed craters or perhaps groups of craters. Indeed, this is actually the case![77] Not until the decade of *Apollo* were the scattering properties of glassy ejecta comprising the lunar rays properly explained. McEwen was still observing at night: he sent a drawing of the total lunar eclipse of 1950 April 2 to that year's Exhibition Meeting.

McEwen was also working on his final Mercury project: the charting of the planet's so-called 'libration zones'. In 1953 he noted: 'Partial progress has been achieved in continuing the mapping of the surface features librating in and out during the planet's orbital circuit'.[78] These charts were actually completed, and shown at the 1953 BAA Exhibition, McEwen having intended to publish them in his projected paper *Mercury and Venus – II*,[79] but by 1953 the sands of time were running out. Of all the pre-Space Age cartographers, only McEwen and, later, the American amateur Gary Wegner would dare to chart the fabled libration regions of the planet.[80]

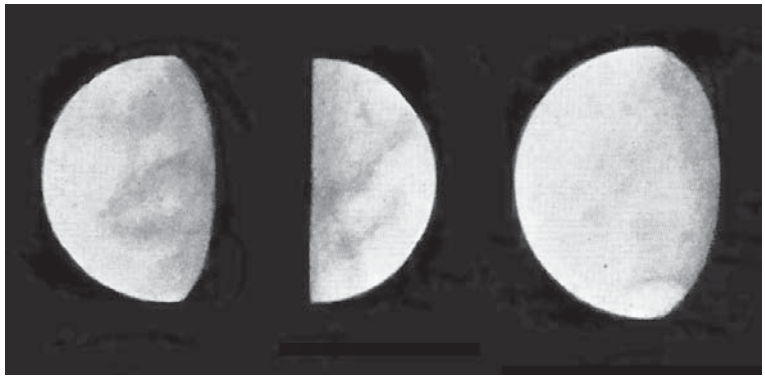

Figure 11. Drawings by McEwen in 1951 (5in OG). *Left:* Mercury, March 29; *centre:* Mercury , May 30; *right:* Venus, May 21. The Mercurian markings are typical. Venus shows definite dark shadings and a large, bright N. cuspidal area. (Reproduced from Ref. 83.) Firsoff redrew McEwen's Mercury drawings for his later book, but increased their apparent resolution by accidentally introducing spurious fine details (Part 1, Ref. 1).

The final decade

In 1945 McEwen reached his Diamond Jubilee as Director. At about this time, BAA historians and Directors were busy compiling the *First Fifty Years* of the Association's history.[81] Oddly, the story of the Mercury & Venus Section was not written by McEwen, but instead – and superficially – by the Director of the Historical Section, H. L. Kelly. Probably McEwen was too busy with his other projects.

In the late 1940s and early 1950s McEwen's most regular Section members included F. M. Bateson, R. M. Baum, R. L. T. Clarkson, the ever-faithful M. B. B. Heath, A. P. Lenham and Patrick Moore. Seemingly only McEwen's correspondence with Baum has survived, though McEwen maintained a steady correspondence with all the other members.[82] He was perhaps, on account of his age, less interested in a large influx of new, possibly inexperienced members: and the Mercury and Venus Section membership did not share the dramatic post-WW2 increase seen in many other Sections.

McEwen's eyesight was still very acute even as late as 1951, when he made the drawings shown in Figure 11 for V. A. Firsoff to illustrate the latter's book, *Our Neighbour Worlds*.[83] McEwen was then 87 years old. He also sent drawings of Mercury to Patrick Moore for the first edition of the latter's *Guide to the Planets* (written in 1954).[84]

McEwen was always ready to comment upon papers submitted to the *Journal*, and it is therefore fortuitous that Patrick Moore described some of his own recent Venus work in the *Journal* of 1953. In response, McEwen penned what would turn out to be his final printed opinions on the matter: 'Moore's remarks anent the rotation of Venus call for a very brief summary of my own conclusions. In 1936 the examination of many original reports, in my possession, of leading continental astronomers revealed surface drift of light and dark areas in a common direction, suggesting movements in 180 Julian days with reference to the first point of Aries, i.e., sidereal period, or relative to the Sun.' Unfortunately the rest of the response contains a grammatical error or some missing words, which confuses things: 'A rotation of 900 Julian days for Venus on its orbit – a pentagon, or maybe a dodecahedron, to represent the globe of Venus like the tetrahedron for the Earth. Later, however, an icosahedron was preferred, since its apices could represent the two cusps, their basic edges being the collars bordering them; also both the tetrahedron and icosahedron are similar to the extent of having 4 and 20 equilateral triangular faces respectively.'[85] Whatever one makes of the final two sentences, it is clear from McEwen's other remarks that he ultimately regarded the Venusian rotation as slow.

McEwen was prevented by terrestrial cloud from seeing the transit of Mercury in 1953 November. In 1954 he was still actively observing, as recorded in what would be his final Report to Council.

Final tragedy: 1955

At the BAA Ordinary Meeting of 1955 March 30 it was announced that McEwen had been forced by ill-health to retire. The President, Dr R. L. Waterfield, paid a tribute to him,

and the BAA Council Minutes of that date[86] reveal an intention to make special recognition of his services with an illuminated address. At the next Council, McEwen was proposed for the Walter Goodacre Medal and Gift by Dr A. F. O'D. Alexander and R. G. Andrews, but it was all too late.

McEwen had been suffering from a recurrent chest complaint, which developed into bronchial pneumonia. He was admitted to the Cleland County Hospital in Motherwell. On May 6 he died, then being in his ninety-first year.[87] He had still been actively working on the problem of the rotation period of Venus a few weeks before his death.[52] The graveyard of the local church having not been used for burials since the Great War, McEwen was interred in the town's Westburn Cemetery on May 9.[88] Apart from the obituary notice from Ovenden in our *Journal*,[52] his passing was not noticed in the local papers.[89] With the audience standing, McEwen's death was announced by the BAA President at the 1955 May 25 Ordinary Meeting.

Council was slow to appoint a successor, perhaps because Venus was approaching its superior conjunction on September 1, or more likely out of respect for the deceased. But this was to be a fatal error. At some point in the following weeks or months James McEwen acted to clear the house of his father's papers. By the time Patrick Moore had been appointed as successor in 1956 January – *seven months later* – there was little left to recover.[90] But the Venus diaries mentioned earlier had been preserved, together with some early miscellanea by McEwen and others.[91]

In the Small Advertisements section of the *Journal*, James McEwen advertised for sale his father's fine Wray refractor. It is very likely that Arthur Frank of Charles Frank Ltd., a Glasgow firm of telescope makers, purchased it for his historical instruments collection. And the young Tom Boles, later BAA President, was loaned a 5-inch Wray for a time by Frank when working for the firm in the early 1960s. Later, part of the collection was auctioned, and the instruments by Scottish makers were conserved by the Museum of Scotland. Unfortunately the Wray could not be traced.

In 1955 James McEwen, then aged 58 and unmarried, was living in his father's home, and apparently was desperately short of cash. By then the place was very run down. Later that year James sold the house to Mr Matthew Nicol, the present owner, and moved into lodgings in Glasgow.[92] Mr Nicol wrote that James was apparently 'a bit of a ne'er do well', and this equates perfectly with the destruction of his father's records. Like his father and grandfather, James McEwen was to live to a ripe old age; isolated from any branch of his family, he died in obscurity in 1984 aged 86.[93] The supreme irony of our story is that the son lived long enough to see pictures of the surfaces of the terrestrial planets taken by *Mariner*, *Venera* and *Viking*, and – always supposing he had been interested enough – to learn the secrets of the those planets that his father had spent his whole life trying to discover.

As a final blow, James could not afford to have his father's name inscribed upon the family grave at Westburn cemetery. But here at least there is a happy ending. Following the acceptance of this paper, the BAA Council agreed to the writer's proposal to have the tombstone engraved at the Association's expense. With the consent of Mr Robert McEwen of Edinburgh, the only known living relative, the work was carried out by a local stonemason in the summer of 2004 (Figure 12).

Figure 12. The McEwen family grave at Westburn Cemetery, Cambuslang, with the new inscription added in 2004. *(Courtesy Mr A. Alexander.)*

Epilogue

Henry McEwen was typical of those amateur astronomers who possessed an engineering background: the real 'practical mechanic' of the late Victorian era. He never owned a large telescope, and had relatively small means. Through his persistence, his example to others and by continual self-criticism he achieved a high reputation for his astronomical work. His many observations of the planets are of much historical value. McEwen's Venus diaries provide a valuable legacy of six decades of nearly continuous work, and contain records of rare Cytherean phenomena such as the Ashen Light, as well as thousands of careful micrometrical measurements. McEwen wrote on a very wide variety of topics: in addition to his planetary work he was interested in optics, solar energy[94] and aurorae.[95]

What, then, did McEwen achieve? He did not solve the problem of Venus' rotation period. But then neither did any other amateur, or professional, within McEwen's lifetime. Indeed, at the end of his life he correctly concluded[85] that it probably could not be solved by visual work alone, though he was right about the very long rotation period of the surface, and also in his realisation that the atmospheric movements must have a considerably shorter period. Just two years after McEwen's death, the French observer Charles Boyer began a systematic programme of violet light photography from French Equatorial Africa, where many observations could be made throughout the day, and from day to day under really transparent skies.[96] Thus he was rapidly able to discover what Frank Ross[97] (from his less complete UV

photography in 1927) could not, and so to announce the 4-day period of the atmosphere.

In the 1960s radar observations were made of the interior planets for the first time. After several attempts by different groups, the slow, retrograde rotation of the Venusian surface (rotating on its axis in 243 days)[98] and the totally unexpected 58.6-day period for Mercury were discovered.[77] McEwen had long realised that the Venusian atmosphere was very thick. His revised estimate of 100 miles[43] was very reasonable. We now know that the UV clouds lie at an altitude of 65km, and that the visible clouds are higher. McEwen's careful micrometrical work showed that the Schroeter Effect is not limited to dichotomy but can be detected at most phases during an elongation of Venus. Following McEwen's work, papers about the origin of the phase anomaly were to become a strong feature of the BAA *Journal* throughout the next four decades.

McEwen was able to map Mercury, using BAA data, much of which was based upon his personal work. His map was included in the NASA Mercury atlas.[100] That he should agree with Schiaparelli is hardly surprising, but he was confident enough to draw the albedo markings as broad patches, independently agreeing with his contemporary Antoniadi, and the work of the Jarry–Desloges observers. He obtained tentative (but ambiguous) evidence for a mercurian atmosphere, and his surmise that the bright patches on the surface might be akin to lunar ray centres has turned out to be correct. As we have seen, his Mars drawings and meteorological notes have proved to be historically useful. McEwen also contributed to the early literature of comparative planetology.

Would it not be fitting for this Scottish astronomer and engineer to be recognised by having a feature named after him on the planet Mercury?

Acknowledgments

The writer extends his grateful thanks to the many people who have helped in his research. In particular he would like to thank Richard Baum for helpfully criticising several drafts of this paper, for his detailed catalogue of McEwen's notebooks, copies of McEwen's letters and blueprints sent to him, and for a huge amount of encouragement over many years.

Mrs Kirstine Baxter, a descendant of the McIntosh family (Rev. John McEwen, Henry's father, had married Mary McIntosh in 1844) was most helpful with McIntosh family history, and generously made available her extensive studies of Scottish genealogical records. She also achieved the very difficult and laborious feats of finding James McEwen's death certificate at the Public Records Office in Edinburgh, as well as the one descendant of John McEwen junior still living in Scotland (and possibly anywhere): Mr Robert McEwen of Edinburgh. (Henry McEwen would have been one of his great uncles.) Robert McEwen was able to supply the precious photograph of the Rev. John McEwen with his wife, other photographs of Rev. John McEwen Jr., the old picture of the family manse, as well as newspaper cuttings and genealogical details. He also readily gave permission to have Henry's name engraved upon the tombstone in Cambuslang cemetery. The Astronomical Society of Glasgow also kindly contributed towards the costs.

Jean Rafferty of the Hampden Terrace Residents' Association of Mount Florida – a charity dedicated to the urban renewal of that area – kindly lent me rare postcards to examine, readily gave me the benefit of her extensive local knowledge, and made several special photographic studies of the area for me. Her published researches concerning the history of Mount Florida were extensively utilised. Dick Tracy of Iowa, USA, sent old published photographs of Mr and Mrs Alexander McEwen. Without the contribution of Matthew Nicol and Henry McEwen's former neighbour we would have no description of our subject's appearance, and I am most grateful to the former for providing photographs from his home – formerly McEwen's – in Cambuslang. Ed Boyle kindly provided local information and photos of 'Old Cambuslang', and Alec Alexander was also very helpful with aspects of local history and further photography. Christine and Uwe Schlueter provided historical details and fine photographs of Dyke Church. Stuart Hall, Senior Reporter for the *Rutherglen Reformer,* kindly photographed the McEwen family lair at Westburn Cemetery, Cambuslang, and through his columns[99] publicised my search for living members of the family. *The Scots magazine* kindly carried a similar appeal by the writer (2003 August).

To Angela Seenan of the University of Strathclyde thanks are due for much research concerning McEwen's studies at the G&WSTC. Molly Duckett of Grantown Museum provided some details of the Burgess family. Rachael Taylor partly searched the archives of the Glasgow Corporation Electricity Department. Lowell Observatory archivist Marty Hecht sent copies of McEwen's correspondence with the Mars Hill staff. The RAS Librarians Peter Hingley and Mary Chibnall were unfailingly helpful in tracking down obscure items from the Society's Archives and for arranging their copying. Christopher Lord made helpful comments concerning Wray's optics. Ray Emery (Leeds AS) kindly copied portraits of Scriven Bolton. Useful conversations about the Frank instrument collection were had with Arthur Frank himself and with Dr Alison Morrison–Low of the National Museums of Scotland. Finally, I thank Tom Boles (BAA President 2003–'05) for a very plausible explanation of what might have happened to Henry's 5-inch Wray.

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Notes and references

1 McKim R. J., *J. Brit. Astron. Assoc.,* **115**(1), 13–24 (2005)
2 Cormack Ian L., *Around Old Cambuslang*, privately printed, 1977. (Available online at http://www.boyle.connectfree.co.uk/Cambuslang/)
3 Glasgow & West of Scotland Technical College *Yearbook*. After 1929, the *Yearbook* dropped these lists of past students.
4 Glasgow Corporation Archives; Section D-TC17/1, *Returns of Salaries and Officials*.
5 From http://www.streetmap.co.uk and correspondence with Matthew Nicol, the owner of 13 Holmhill Avenue, Cambuslang, since 1955.

6 Figure 1 was extracted from: *Cambuslang – in old picture postcards*, Zaltbommel, Netherlands, n.d. (*ca*. 1980–1985)
7 Cited by W. H. Pickering, 'Report on Mars No. 21', *Popular Astronomy*, **27**, parts 2–3 (1919)
8 A general BAA history which includes the story of the Scottish Branches and of the BAA Sections is given in: H. L. Kelly (*ed.*), *Mem. Brit. Astron. Assoc.,* **36**, part 2 (1948), and the sequel can be found in: R. J. McKim (*ed.*), *ibid.,* **42**, part 2 (1990).
9 By chance this was also the institution where the writer lectured on the topic of McEwen's life and work on the occasion of the Centenary of the Scottish branch and the 40th anniversary of its successor, the Astronomical Society of Glasgow.
10 *J. Brit. Astron. Assoc.*, **19**, 241 (1909); *ibid.*, **34**, 219 (1924)
11 *ibid.*, **31**, 299–300 (1921)
12 Letter from T. R. Tannahill to R. J. McKim, 1994 October 5. Mr Tannahill was appointed Branch Secretary in 1944. RJM's own checks also failed to find any evidence of McEwen having attended a Council meeting in London, at least not during the period of the various BAA Ordinary Meeting and Council records from 1915 onwards.
13 Plotkin H., 'William H. Pickering in Jamaica: The Founding of Woodlawn and Studies of Mars', *J. Hist. Astron.*, **24**, 101–122 (1993)
14 McEwen H., *J. Brit. Astron. Assoc.*, **31**, 218–222 (1921).
15 The A.Stanley Williams papers in the RAS Archives contain another copy of the blueprint which McEwen had made and sent to Section members: as an engineer he would have had ready access to this attractive form of duplicating. (RAS MSS WILLIAMS)
16 BAA *Circular*, 1924 February 28
17 R. L. T. Clarkson (1889–1954), *J. Brit. Astron. Assoc.*, **64**, 405–406 (1954)
18 In 1947 Walter Haas founded the ALPO (Association of Lunar & Planetary Observers) in the USA, an organisation modelled upon the BAA plan.
19 M. B. B. Heath (1889–1963), *J. Brit. Astron. Assoc.*, **74**, 122–124 (1964)
20 M. B. B. Heath's fine drawings of Mercury were also reproduced in his Mercury and Venus chapter in: Rev. Martin Davidson (*ed.*), *Astronomy for Everyman*, Dent, 1953
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22 Peek B. M., *ibid.,* **36**, 300–301 (1926); Steavenson W. H., *ibid.*, **36**, 297–299 (1926). The Director's comments can also be read: *ibid.*, **36**, 301–304 (1926).
23 McEwen wrote long series of papers for both the 1924 and 1927 evening elongations of Venus. They are all listed in the *General Index* to the BAA *Journal*, volumes 1–50 (1890–1940).
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25 A few letters to and from McEwen are preserved in the Lowell Observatory Archives. They concern the nature of the martian surface and the question of determining the rotation period of Venus by spectroscopy.
26 Antoniadi E. M., *La Planète Mercure*, Gauthier–Villars, Paris, 1934; English translation by Patrick Moore, *The Planet Mercury*, Keith Reid Ltd., 1974.
27 Antoniadi E.M., *J. Brit. Astron. Assoc.*, **39**, 86–89 (1929)
28 McEwen H., *ibid.*, **39**, 24–31 (1928), 113–122 & 297–311 (1929)
29 McEwen H., *ibid.*, **46**, 382–389 (1936)
30 For a short biography of Major P. B. Molesworth, see McKim R. J., *ibid.*, **107**, 239–245 (1997).
31 By chance an envelope containing this 1923 Mercury series survived among McEwen's effects.
32 McEwen H., *J. Brit. Astron. Assoc.*, **39**, 24–31 (1928). He further noted that the turquoise colour of the morning sky accentuates the brilliancy of the orange-yellow tint of Mars, but does not affect the yellow-white tint of Mercury. See also *ibid.*, **46**, 32 (1935).
33 McEwen H., *op. cit.* The comparison showed that the details of Mercury are intrinsically fewer and fainter than those of Mars.
34 Antoniadi was not a member of the BAA from 1917 till 1935. He therefore had not read McEwen's important contributions to the mapping of Mercury when compiling his early chart or his famous book.[26] Soon after publication of the book he read McEwen's earlier papers and immediately gave him full credit for his mapping work. (See his later Mercury paper in *J. Brit. Astron. Assoc.*, **45**, 236–239 (1935), and his lengthy remarks to McEwen quoted in Ref. 40, which include: 'I warmly congratulate you on this great success of your observations with only a 5-inch on so difficult a planet.')
35 Katterfeld G. N., in Patrick Moore (*ed.*), 1968 *Yearbook of Astronomy*, Eyre & Spottiswoode, 1967. This is the only reference I have seen to acknowledge McEwen, but the history of lunar geology is not my field and I have not looked for other sources.
36 McEwen H., *J. Brit. Astron. Assoc.*, **32**, 23–24 (1921)
37 Firsoff V. A., *Strange World of the Moon*, Hutchinson, 1959, page 109
38 The influence of Antoniadi can be seen in the following paper: McEwen H., *J. Brit. Astron. Assoc.*, **46**, 141–147 (1936).
39 Antoniadi E. M., *J. Brit. Astron. Assoc.,* **44**, 341–347 (1934)
40 McEwen H., 'Mercury in 1934', *ibid.*, **45**, 268–274, 315–317 and **46**, 24–32 (1935).
41 McEwen H., *ibid.*, **48**, 62–71 (1937) and 110–112 (1938)
42 Clayden A., *Mon. Not. R. Astron. Soc.*, **69**, 195–204 (1909)
43 McEwen H., *J. Brit. Astron. Assoc.*, **42**, 361–362 (1932)
44 McEwen H., *English Mechanic*, No. 1552, **60**, 408–409 (1894 December 21). The book concerned is: Camille Flammarion, *La Planète Mars et ses conditions d'habitabilité*, Paris, Gauthier–Villars, 1892.
45 Stanley Williams A., *The Observatory*, No. 221, **17**, 391–394 (1894)
46 These martian dust storm observations for 1894 were extensively discussed by the writer in *Mem. Brit. Astron. Assoc.*, **44** (1999).
47 When E. M. Antoniadi resigned the Directorship of the BAA Mars Section in 1917, McEwen and Harold Thomson were the two leading UK Mars observers in addition to the Rev. T. E. R. Phillips (who already ran the Jupiter Section). Council Minutes show that Thomson was approached as a successor to Antoniadi, but he suggested McEwen instead of himself. Council prevailed upon Thomson to accept the position. This was sensible because McEwen's telescope was too small for him to actively lead the Section.
48 Thomson H., *Mem. Brit. Astron. Assoc.*, **26**, part 1 (1924), pages 6–7. McEwen at this apparition had prepared sets of colour scales for Mars Section members in order to encourage uniformity in their colour descriptions.
49 These data were used in drawing up apparition maps of the planet and later for refining its rotation period.
50 W. H. Pickering drew together a more international grouping than the BAA Mars Section could then attract. He wrote a series of 44 highly speculative and incomplete reports in the now defunct American magazine *Popular Astronomy*. Several BAA members contributed.
51 This series is reproduced from Pickering's *Report on Mars No. 17*, published in *Popular Astronomy*, **24**, no. 10 (1916).
52 Ovenden M. W., *J. Brit. Astron. Assoc.*, **65**, 363 (1955)
53 Letter from H. McEwen to Annie S. D. Maunder (then Editor of the BAA *Journal*), 1931 June 27, and referring to his wife's death. (Given to the author by D. W. Dewhirst, having been found in an old book from Maunder's library.)
54 Letters from Matthew Nicol, the current owner of 13 Holmhill Avenue, to the writer, 1997 September 7 and 27.
55 My late father John McKim once told me how inexpensive it used to be to play at any of the Scottish municipal golf courses in the 1940s and 50s. One did not need to be wealthy to enjoy golf in McEwen's day.
56 Letter from H. McEwen to W. H. Steavenson, 1927 September 6, BAA Mars Section Archives.
57 Kirkhill Golf Club enjoys fine views of Glasgow. Various aspects are nicely illustrated on its website.
58 The writer thanks Mr R. M. Dunlop, Secretary of Cambuslang Golf Club for checking membership records.
59 The same applies to the Mount Florida Bowling Club, and I acknowledge the help of its Secretary Mr J. Eastop, for checking their old records.
60 McEwen H. & Ross J. J., *J. Brit. Astron. Assoc.*, **53**, 67–68 (1943). The two had also cooperated for the 1921 April 8 eclipse (*ibid.*, **31**, 303–305 (1921)).
61 Greenock Fire Department Firemaster's Report – Air Raid 6th May 1941; 7th May 1941 (http://www.graeme.kirkwood.btinternet.co.uk/SFB/Greenock/Blitz.htmBlitz). See also: S. Macdougall and M. Skee (*eds.*), *The Greenock Blitz: May 6th–7th 1941*, Inverclyde District Libraries, 1991. My father recalled to me his narrow escape on that night when the neigh-

bouring tenement building and the adjacent Ladyburn railway sheds and marshalling yards received direct hits. The main target area – the docks – largely escaped.

62 McEwen H., 'Mercury and Venus – I', *J. Brit. Astron. Assoc.*, **57**, 139–143 (1947)

63 Baum R. M., *ibid.*, **103**, 115–116 (1999). This historical note also gives many past references to the 'star spots' of Venus.

64 McEwen H., *ibid.*, **56**, 154–155 (1946)

65 McEwen H., *ibid.*, **50**, 217–218 (1940)

66 Dollfus A., in Kuiper G. P. & Middlehurst B. M. *(eds.)*, *Planets and Satellites*, University of Chicago Press, 1961, p. 552 and Plate 7.

67 Another (*anon.*) Venus chart based upon the long rotation period is reproduced in: L. Rudaux and G. de Vaucouleurs *(eds.)*, *Larousse Encyclopaedia of Astronomy*, Hamlyn, 1966, especially pages 188, 192. 'During the last 30 years, French astronomers, notably J. Camus, A. Danjon and A. Dollfus, have produced charts showing features which they believe to be always visible under suitable conditions.' In the 1st French edition: *Astronomie: Les Astres, l'Univers*, Librairie Larousse, 1948, the authors had reproduced the same map (actually that of Jacques Camus, first published in *Bull. Soc. Astron. France*, **46**, 434–437 (1932)) and had been somewhat more positive about its value.

68 Boyer C., 'The four-day rotation of Venus' atmosphere', *J. Brit. Astron. Assoc.*, **83**, 363–367 (1973)

69 A. Dollfus to R. J. McKim, private communication, 2003.

70 I am grateful to R. M. Baum for pointing this out to me.

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72 *The British Astronomical Association: Its Nature, Aims and Methods*, 1948 June, page 14

73 McEwen H., *J. Brit. Astron. Assoc.*, **59**, 224 (1949)

74 McEwen H., *ibid.*, **61**, 210 (1951)

75 *ibid.*, **60**, 178 (1950)

76 Lawrence E. Krumenaker, in his paper 'Remarks on the Nomenclature of Mercury' (*Icarus*, **34**, 215–219 (1978)) has written that Antoniadi's 'unexpected lightenings of bright areas and disappearances of dark features, actually due to Mercurian rotation, were attributed by him to atmospheric phenomena and volcanic clouds.'

77 Graham D. L., 'The nature of albedo features on Mercury', *J. Brit. Astron. Assoc.*, **105**, 12–16 and 59–64 (1995)

78 McEwen H., *ibid.*, **63**, 295–296 (1953)

79 McEwen H., *ibid.*, **63**, 237 (1953)

80 Haas W. H., 'Observations and Comments', *J. Assoc. Lunar Planet. Obs.*, **14** (11–12), 191, 194 (1960); W. Sandner, *The Planet Mercury*, Faber & Faber, 1963.

81 Kelly H. L., (*ed.*), *Mem. Brit. Astron. Assoc.,* **36**(2), 1948, pp 84–86

82 Richard Baum (a BAA member since 1947) has kindly sent me copies of 12 letters received from McEwen for the period 1950 to 1952.

83 Firsoff V. A., *Our Neighbour Worlds*, Hutchinson, 1952, page 229

84 Patrick Moore, *Guide to the Planets*, Eyre & Spottiswoode, 1955, plate 4

85 McEwen H., *J. Brit. Astron. Assoc.,* **63**, 262–263 (1953). These remarks were in response to an observational paper by Moore, *ibid.*, 260–262.

86 BAA Council Minutes, 1955 (BAA Archives)

87 As given on Henry McEwen's death certificate and confirmed by the Westburn lair records.[88] The death certificate refers to bronchial pneumonia as well as to general arteriosclerosis.

88 Henry McEwen was buried in the same lair as his wife Sarah and his sister-in-law Janet Forsyth (d. 1926). I am grateful to Mr W. Stanley, South Lanarkshire Council Cemeteries Manager, for these latter details.

89 I am grateful to Dr David Gavine for checking (at Glasgow University library) the lists of biographies published in the *Glasgow Herald* and in other local papers. The Senior Reporter of the present local paper *The Rutherglen Reformer*, Stuart Hall, was unable to find anything in microfilms of those local papers on sale in 1955 (*Cambuslang Pilot*, *Cambuslang Advertiser* and *East Kilbride News*).

90 Council should have acted much more quickly to recover the records before Moore's appointment seven months after McEwen's death. Moore tried his best to recover the records as soon as he became Director. BAA Council Minutes reveal that by 1956 February 29 Moore had written to E. A. Beet (Secretary) about the possibility of recovering the material. Dr Ovenden agreed to help. On April 25: 'Mr Moore reported that the records of the Mercury and Venus Section had been traced', but on May 30: 'Mr Moore reported that he had recovered the older records of the Mercury and Venus Section, but that all the modern ones had been destroyed.'

91 Some Venus observing books of Major P. B. Molesworth from the 1890s survived, and also two envelopes survived containing McEwen's drawings of Venus in 1900 and 1913, and of Mercury in 1896 and 1923, and a few other odds and ends. Moore was therefore forced to start from almost nothing, at the start of his energetic Directorship (1956–1962).

92 According to Matthew Nicol, when James McEwen moved out of the house in 1955 he went to live at the Great Eastern Hotel in Duke Street in Glasgow, a polite name for a hostel which until recently housed those who had 'fallen through the cracks in Society'. According to his death certificate, he died of kidney failure on 1984 July 25, apparently having no living relatives, for the document fails to record his parents' names or even an address. He could easily have remained at the Great Eastern all those years, but the loss of records by the former owner now makes it impossible to check.

93 Information from the death certificate for James McEwen.

94 McEwen lectured to the Engineering Society of the Glasgow Corporation Electricity Department about Solar Energy; the lecture was repeated to the West of Scotland Branch and reported in *J. Brit. Astron. Assoc.*, **34**, 130–131 (1924).

95 Our subject's observations of the magnificent auroral display of 1938 January 25 were described in *J. Brit. Astron. Assoc.,* **48**, 197 (1938).

96 (C. Boyer) Commission des Instruments, Cent-Neuvième Séance, 28 Decémbre 1957, *Bull. Soc. Astron. France*, **72**, 73 (1958). (See also *ibid.*, page 328.) Of Boyer's Venus photography it is written therein: '... il a aussitôt remarqué une périodicité de 4 jours entre les aspects enregistrés.' This rather obscure announcement, buried in a page of other news, was understandably not noticed outside France. But later papers by Boyer in the same journal should have been found by the American observers who later announced what they took to be *their* discovery of the 4-day atmospheric period in 1967. A later review by the discoverer himself is also available in English: see Ref. 68. During his Directorship of the BAA Mercury & Venus Section, J. Hedley Robinson would send Boyer copies of blue-light drawings by its members.

97 McEwen wrote about the 1927 UV photography by Ross at Mt Wilson in the *Journal*, **42,** 321–325 (1924), and compared the images with the Section's drawings.

98 Garry E. Hunt and Patrick Moore, *The Planet Venus*, Faber and Faber, 1982; Peter Cattermole, *Venus: The geological story*, Johns Hopkins University Press, 1994, and references therein.

99 Stuart Hall, 'Hunt is on for the 'man with the gun' ', *The Rutherglen Reformer*, 2003 May 23.

100 Davies M. E., Dwornik S. E., Gault D. E. & Strom R. G., *Atlas of Mercury*, NASA SP-423, Washington DC, 1978, figure 15.

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