

Donati's and Coggia's Comets, 1858 and 1874

As one who remembers seeing, when between seven and eight years old, Donati's Comet, I am puzzled by the description of its appearance in *Journal*, 49, 369. It reads much more like the one I saw in 1860 or 1861.

At present I have no book available on comets, but I fancy Donati's Comet appeared first in late August or September when stars only shone brightly after my bedtime. So I was consoled with a promise to wake me up later and to take me into the next room with a north-west window.

That first time it was seen, as I remember it, the head was much like one of the brighter stars and the tail, slightly curved downwards, was inclined upwards at an angle of perhaps 10° . But surely it was visible for fully a month, the head growing rather brighter and getting lower, and the tail becoming longer and longer, spreading slightly fanwise yet never very wide.

The only other detail I recall is the night when we saw Arcturus through the tail, 10° or more from the head. All through it swept among the stars, pointing upwards at about 45° .

When Coggia's Comet appeared in 1874, while I was at Heidelberg, seen at first through a hand telescope but finally reaching some two-thirds up towards the zenith, with its head behind the Heiligenberg, it nevertheless struck me as second to Donati's in splendour.—
J. EDMUND CLARK.

OBITUARIES

Andrew Claude de la Cherois Crommelin *

By the passing of Andrew Claude de la Cherois Crommelin the B.A.A. has lost one of its most devoted and distinguished members. He joined the Association in 1895, was one of the Secretaries from 1900 to 1904, President in 1904-6, and held the Directorship of the Comet Section from 1898-1901 and 1907-1938, when the accident which led ultimately to his death compelled him to resign the post. For many years he had written the Comet Notes for the *Journal*, computed orbits, supplied ephemerides and issued the *Circulars*, and in 1938 he received the Walter Goodacre Medal and Gift in recognition of his great services to the Association.

Crommelin came of a well-known Huguenot family. He was the third son of the late N. D. C. Crommelin and a descendant of Louis Crommelin, the Huguenot founder of the linen trade in Ulster. He was born at Cushendun in Co. Antrim, and was educated at Marlborough, whence he gained a Scholarship at Trinity College,

* For some of the details given in this notice—especially those relating to Dr. Crommelin's mathematical work—the writer is indebted to the Rev. Dr. M. Davidson.

Cambridge. He graduated as 27th Wrangler in 1886. In 1889 he joined the staff of Lancing, but two years later was appointed Assistant at the Royal Observatory, Greenwich, where he served till his retirement in 1927. During his time at the observatory he had charge in succession of the two altazimuths which were employed mainly for determining the positions of the Moon, but he also took particular interest in the study of comets. His work as a computer of cometary orbits gained him a world-wide reputation, but special mention must be made here of the part he took in conjunction with Dr. P. H. Cowell in the calculation of the return of Halley's Comet in 1910. The method employed for computing the perturbations of the planets was designed by Cowell, but it seems to have been Crommelin who first urged the importance of a thorough inquiry into the circumstances of the comet's path with a view to an accurate prediction of the date of its return. The work was very heavy, and a full account of it is given in the volume *Investigation of the Motion of Halley's Comet from 1759 to 1910*. The perturbations of all the planets (except, of course, Pluto) were taken into consideration, and the predicted date of perihelion was only three days in error—a wonderful triumph for the computers in view of the fact that the comet's period is about 76 years. It is noteworthy, too, that in the course of a series of joint papers published in *M.N.R.A.S.* the two authors traced the history of the comet as far back as the perihelion passage of 240 B.C. The degree of D.Sc. *honoris causa* was conferred on Cowell and Crommelin by the University of Oxford, and they were also awarded the Lindemann Prize of the Astronomische Gesellschaft. But while the method of computation employed gives great accuracy in its results, the large amount of labour involved renders it somewhat difficult for amateur computers, and Crommelin met the needs of these by publishing "Tables for Facilitating the Computation of the Perturbations of Periodic Comets by the Planets" in the *Memoirs of the R.A.S.*, vol. lxiv. These Tables give the coefficients of the perturbations as functions of the eccentricity and mean anomaly, and members of the B.A.A. Computing Section utilise them when the perturbations of Jupiter, Saturn, and also of the Earth and other inner planets are required.

But while it may be said that Crommelin's chief interest was in comets and their orbits, he showed a remarkable versatility and breadth in his knowledge of astronomy in general. He was blessed with a wonderful memory, and on almost any topic that might be raised at astronomical meetings or in the course of conversation he had something illuminating to contribute. Despite his encyclopædic knowledge, however—perhaps because of it—he was always kindly and considerate in discussion, and while outspoken in pointing out error, he did all he could to encourage the young astronomer. He was always broad-minded, able to appreciate others' points of view, and anxious to give due credit to all. As providing a single illustration among others which might be cited of this trait, we may recall the circumstances associated with the discovery of Pluto and Crommelin's

appreciation of the work of W. H. Pickering as well as that of Lowell.

Many of those whose memories go back to the earlier half of the Association's history regard Crommelin as one of the most successful—if not *facile princeps*—amongst the Presidents of that period. His two years in the chair will never be forgotten by those who sat under him, for, professional astronomer though he was, he was equally an amateur in outlook, and followed with the closest interest amateur work of all kinds. His interest in the topography and problems of Mars, the phenomena of eclipses, meteors, the Red Spot on Jupiter, the White Spots on Saturn, etc., may be mentioned as illustrations of his versatility, and for several years after the death of A. Marth, and prior to the inclusion of such data in the *Nautical Almanac*, he published in the *M.N.R.A.S.* ephemerides for the use of planetary and lunar observers. Crommelin's great love for astronomy in general was further shown by the fact that retirement from his professional duties did not mean retirement from astronomical work, and the Association in particular profited by his unabated interest and enthusiasm. It is indeed a tragedy that an accident which need not have been should have prematurely deprived the Association of his invaluable services.

As an eclipse observer Crommelin joined the B.A.A. expedition to Vadsö in 1896. He also attended the eclipses of 1900 (Algiers), 1905 (Majorca), 1912 (Paris) and 1927 (North Wales), but it was as a member of one of the two official parties sent out to observe the Eclipse of 1919 May 29—when he accompanied Mr. C. R. Davidson to Brazil—that he did his most important eclipse work. Photographs were secured which helped to establish the bending of rays of light from stars surrounding the Sun's place in the sky on their passage through the Sun's gravitational field as predicted by Einstein's Theory of General Relativity.

In the foregoing notes special emphasis has naturally been laid on Crommelin's work for the B.A.A., but his contributions to the Royal Astronomical Society were also numerous and valuable. In particular, for over forty years he communicated for inclusion in the Annual Report of the Council notes on the discovery of Minor Planets, researches relating to their orbits, and kindred matters, and he also wrote the notes on Comets. He served as one of the Secretaries of the Society from 1917 to 1923, and was President for the two years 1929–31. In addition to his more technical work Crommelin contributed articles to various journals and publications and wrote several of the chapters in *The Splendour of the Heavens*. His published books are: *The Star World*, *The Story of the Stars*, and *Comets*, the latter being written in collaboration with Miss Mary Proctor and appearing in 1937.

In 1897 Crommelin married Letitia, daughter of the Rev. R. Noble. She died in 1921. He had two sons and two daughters, but lost his elder son and younger daughter by a climbing accident on Scafell,

in the English Lake District, in 1933. His sister is Mrs. Masefield, wife of the Poet Laureate, and a cousin—Miss May Crommelin—is a well-known novelist.

A few sentences of a personal nature may perhaps be added here by the writer, who had not only met with invariable kindness from Crommelin through many years, but had been co-Secretary with him of another Society, and had enjoyed the privilege of close association with him at the Rome meeting of the I.A.U. in 1922. He is accordingly able to write of him with knowledge greater than that of mere acquaintance. A man of higher ideals and principles could not be found, and he carried them out faithfully and fearlessly. Many years ago he had joined the Roman Church, but those who differed from him widely on theological issues could not but be impressed by the strength and constancy of his faith in a world largely characterised by scepticism and controlled by materialistic aims. It is in affectionate remembrance of Crommelin, which will be shared by all who really knew him, that these notes have been written.—T. E. R. P.

Arthur Everard Levin

It is with great regret that we announce the death of Major A. E. Levin, T.D., which took place on November 8 after a short illness. To many it will seem almost impossible to imagine either the Council or the Ordinary Meetings without his presence, and the Association deplores yet another of its leading members removed from its activities.

Levin was born on 1872 February 17, and took up electrical engineering as a profession. On the outbreak of the South African War he enlisted in the London Electrical Engineers, and on the conclusion of that war held a Government appointment for some time. Later on he returned to his profession and joined the firm of Mordey & Dawbarn, consulting engineers, and after some years entered into partnership with Mr. Mordey, with whom he remained until the end of 1928. Most of his engineering training was done in Switzerland, where he perfected his knowledge of German, which he was able to read and speak with considerable ease. He spent two years in Egypt, after completing his training in Switzerland, before returning to England.

As an old Volunteer he remained with his unit when the Volunteers became Territorials, and on 1914 August 5, the day after declaration of war, was mobilised for service. After a year spent in charge of the lights at Newhaven he went to France in charge of the first Electrical and Mechanical Company to be sent to the Western Front. He was mentioned in dispatch in 1918 April, and later on was sent to Italy, where he remained until he was demobilised in 1919. His knowledge of Italian as well as of French served a useful purpose during the War, and he was retained in Italy for some

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ARTHUR EVERARD LEVIN

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time after the cessation of hostilities to settle various matters relating to the purchase of stores by the Italian Government.

After demobilisation Levin's interests turned chiefly towards astronomy, though he had other scientific interests as well, being a member of the Queckett Microscopic Club. He was elected a Member of the B.A.A. in 1919 and a Fellow of the Royal Astronomical Society in 1921, serving on the R.A.S. Council 1931-32. The Computing Section of the Association was formed in the 1920-21 session, and after Dr. L. J. Comrie's resignation from the first Directorship in 1922 Levin was appointed Director. He remained Director of this Section with a few minor interruptions until 1938, when he began to feel the strain of the work, and suggested that someone younger should undertake the responsibility. It is not too much to say that the very satisfactory condition of the Computing Section to-day is due to the kindness and courtesy of Levin in teaching potential computers, to whom he would devote any time and labour so long as he could initiate them into the difficulties as well as the interests of computing. The remark made by one whom he had taught is an interesting commentary on his ability. Speaking to the present writer of his skill in making the obscure plain, he said, "Levin should have been a University Don." His kindness to those who wanted to learn will never be forgotten by members who derived so much assistance from his teaching. It is unnecessary to say anything about the value of the *Handbook*, which ranks as a production of primary importance amongst the publications of the Association and is accepted with considerable interest at many of the great observatories. It is a very fine piece of work for a body of amateurs, and it is doubtful if many other similar bodies would undertake such a responsibility.

Levin's chief interest was connected with the phenomena of satellites, and some of his early papers in *Journal*, 31, 2, 3, 4, 5, 10, dealt with the Phenomena of Saturn's Satellites. An Interim Report, "Occultation of Jupiter's Satellites," appeared in *Journal*, 32, 5, and in *Journal*, 37, 4, he had a paper with the title, "Mutual Eclipses of Jupiter's Satellites in 1926." The subject was one that gave him intense interest, and his first Presidential Address in 1931 dealt with the Mutual Eclipses and Occultations of the four principal Satellites of Jupiter. It is unnecessary to mention all the subjects with which he dealt at various times in the *Journal* up to the time of his death, but reference may be made to the last piece of work that he undertook in collaboration with Mr. J. G. Porter, his successor as Director of the Computing Section. This was the computation of the perturbations of the planets on Comet Pons-Winnecke during the revolutions 1927-33 and 1933-39. The usual method of applying the perturbations to the elements, Crommelin's Tables being used, was not adopted, but the much more tedious and also more accurate method used by Cowell and Crommelin for Halley's Comet was utilised. As is well known to readers of the *Journal*, the Comet was rediscovered

by van Biesbroeck very close to its predicted position. Up to a few weeks before his death Levin was engaged in improving the elements of the Comet's orbit from the observations that were supplied since its rediscovery.

Something should be said about his papers that appeared at various times in the Reports of the Computing Section. In the first of these, 1921, he had an important paper entitled, "The Correction of Declination and Hour Angle for Atmospheric Refraction." In the second *Memoir*, 1934, he had a long paper with the title, "Mutual Eclipses and Occultations of Jupiter's Satellites," in which he recorded various convenient methods that he had developed, and these are available for future use in this branch.

He was Secretary of the Association from 1921 to 1930 and President from 1930 to 1932, and his efficiency and popularity in both offices are so well known that it would be superfluous to enlarge upon this side of his work.

Amongst his hobbies may be mentioned mountain climbing and photography, both of which occupied some of his time during his stay in Switzerland. After his return from his visit to the Southern Hemisphere in 1936 he addressed the Association on his experiences, of which delivering a lecture on astronomy at Sydney was one of chief interest. Although his main astronomical work lay in the computational side he was also interested in observational work, and he went to Leyburn to see the 1927 total solar eclipse but unfortunately it was missed owing to clouds. He presented his 4-inch refractor to the Association this year, and requested that his 6-inch refractor and observatory at Selsey, together with his astronomical books, should also be given to the Association. This is typical of his whole nature, unselfish, courteous, keenly developed cultural interests, and a wonderful sense of humour which often alleviated the seriousness of some abstruse matter under discussion at the meetings. The Association can ill afford to lose one who has done so much in the cause of astronomy, and he will not soon be forgotten by his many friends.

He leaves a widow and one son, the latter serving in the Navy.—M. D.