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THOMAS DAVID ANDERSON

"Watcher of the Skies"

BY

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THOMAS DAVID ANDERSON

FOREWORD

This pamphlet contains the substance of my Presidential address to the Astronomical Society of Edinburgh on November 6, 1953. The commemoration at Innerwick on May 22, 1954, and the addition of an inscription on Dr. Anderson's tombstone arose out of a suggestion made in the course of the address.

I am indebted to Miss Jean Grieve, North Berwick, niece of Dr. Anderson, for supplying details concerning the Anderson family and her uncle's early childhood and latter years and for the interest which she has taken in this brief sketch of the life and work of one who fills an honoured place in the history of observational astronomy.

H. M.

EDINBURGH, July 1954.

THOMAS DAVID ANDERSON

"Watcher of the skies"

ROUND about fifty years ago the name of THOMAS D. ANDERSON was widely known far beyond the bounds of his native Scotland. Astronomers, professional and nonprofessional alike, and readers of popular and technical books on the science, knew of him as the discoverer of two famous temporary stars - Nova Aurigae (1892) and Nova Persei (1901) - and of many variable stars as well.

But he remained, even to the citizens of his native city of Edinburgh, a name and nothing more. He was simply "Dr. Anderson," and information concerning him was not readily available. His name did not appear in Who's Who or in any similar book of reference: for some reason or other he was not a Fellow of the Royal Astronomical Society or of the Royal Society of Edinburgh or a member of the British Astronomical Association, though his name would have adorned the roll of any of these. A bachelor who shrank from publicity, he became, if that were possible, a still more elusive figure when he left Edinburgh in search of clearer skies over fifty years ago. His death in 1932 passed unrecorded in any of the scientific journals: it was not even announced in the obituary columns of the daily press.

Beyond the fact that he was a diligent watcher of the skies, who discovered three novae and fifty-three variables, no details concerning his life would now be known but for a certain fortunate circumstance, which calls for some detailed reference. When I was a young student I contributed to an Edinburgh weekly journal, long since defunct, a series of articles on "Astronomers of To-day", later produced in book form. I thought of including Dr. Anderson among these famous men, but could find no information about him anywhere. I did not know him, nor did I know anyone who did, and so the book appeared with the discoverer of Nova Aurigae and Nova Persei omitted. A year or two later, by some chance circumstance which I cannot now recall, I learned that he had left Edinburgh and gone to live in Haddington, and I was successful in finding his address. I decided to atone in some measure for my "sin of omission" and to write an article on his life and work for a scientific magazine. I therefore ventured to write to Dr. Anderson, asking for some details of his career. In reply I received not only a kind and courteous letter, but an autobiographical notice, in neat and closely written handwriting, extending to seven pages, with a list appended of all the variable stars which he had discovered up to date. This precious document is, to my knowledge, the only record of Anderson's life which exists.

Thomas David Anderson was born in Edinburgh in his parents' house in Saxe-Coburg Place on February 6, 1853. His father, John Anderson, was a business man in well-to-do circumstances: he was a director of the firm of Robert Grieve & Co., upholsterers, in George Street. When about 60 years of age he married Miss Jane Marshall, who was then about 30. John Anderson died in 1875 at an advanced age and his wife survived him by only five years. There were six children of the marriage, three sons and three daughters. The two older boys, John and William, died in early childhood of scarlet fever; Thomas was therefore the only son who survived. The eldest daughter, Christian, married Symington Grieve, well known in Scotland and beyond as an archaeologist and ornithologist. He was a nephew of Robert Grieve, John Anderson's business partner, who was for a time a member of Edinburgh Town Council and a bailie of the city. The other two daughters remained unmarried and kept house for their brother after their parents' death. Jean, the younger of the two, died in 1912 at Innerwick, but Magdalene, the elder, survived her brother for nine years and died at North Berwick in 1941.

Thomas Anderson's interest in astronomy was first aroused by Elizabeth Main, a young woman employed as nurse to the Anderson children. "Libby," as she was familiarly known, would appear to have been much more than a mere employee, indeed an esteemed family friend. But John Anderson was himself a man of some considerable culture, and he encouraged the little boy's childish interest in the starry heavens.

In the autobiographical notice which he wrote for me, Anderson stated that when he was five years of age his father took him to the front door and showed him Donati's comet. "As he pointed out the great marvel above the top of the tree that stood before our house in Saxe-Coburg Place, he said to me that however long I might live I should never again behold anything so wonderful. So far as comets are concerned, he was right, I fancy."

"Although my father took not a little interest in such matters, he got his knowledge from books, rather than from nature. He did not know the constellations - a fact of which I am now somewhat glad, for I had thus the joy of puzzling them out for myself. I was twelve or perhaps thirteen years old when I happened to see in the window of Messrs. Gall & Inglis's establishment in George Street a small work, price one shilling, entitled The People's Atlas of the Stars. 'There,' I said to myself, 'is the book for me.' Accordingly I purchased a copy of the Atlas. Finding, however, that I was not so clever as I had supposed, and being unable that night to identify the stars by means of it, I returned next day to George Street and invested a second shilling of my pocket money in a companion work which I had seen in the window, viz. An Easy Guide to the Constellations. (The two works are, I may mention, by the same author, the Rev. James Gall.) I had now a pleasant and as I soon found not at all a difficult occupation in identifying the various constellations and in learning the names and letters of the chief stars in them; and my studies of the firmament were all the easier as the house in East Claremont Street where I then lived ... was in those days splendidly situated for star-gazing, there being wide stretches of vacant ground both to the front and to the back of it. I can remember to this day the pleasure with which I inserted in the People's Atlas of the Stars some stars that were omitted, e.g. 34 Boötis; the pretty pair, Upsilon^1 and Upsilon^2 Cassiopeiae; and the little star close to Mizar, generally called Alcor ...."

"After I had learned the constellations, I naturally took to reading works on astronomy. I got hold of my father's copy of Ferguson's Astronomy and read it with relish, although I remember that I skipped the chapter on the equation of time .... In those days I read every book and magazine article on which I could lay my hands."

Anderson had no intention, however, of becoming a professional astronomer. He was destined for the ministry: his parents were members of Augustine Congregational Church in George IV Bridge, and it was to the Congregational ministry that Anderson was dedicated. In 1869 he completed his early education at the school then known as the Edinburgh Institution and located in Queen Street, but now known as Melville College. In the same year he entered the University of Edinburgh, where he graduated in 1874 with first-class honours in Classics. "My close attention to Classics", Anderson recorded, "had the inevitable result of causing me to neglect astronomy to a considerable extent, as did also my subsequent course of study for the ministry". After completing his course at the Scottish Congregational College, Anderson wrote a thesis on "The Latin Conjunctions" which gained for him in 1880 the Degree of Doctor of Science in Philology.

Anderson told me that after the close of his theological course "a grave misfortune" overtook him. "The myopia which I had contracted in my early student days and which had worked havoc with the splendid eyesight which I enjoyed when a boy was, I found, increasing to such a degree as to make it absolutely imperative for me to refrain from the writing of sermons. Accordingly, although three congregations offered me the privilege of becoming their pastor, I resolved reluctantly to relinquish the career which I had chosen."

It seems remarkable that a man whose eyesight had become so poor as to preclude his entrance into the ministry was yet to become famed as an eagle-eyed watcher of the skies. The conclusion seems inescapable that the bad state of his sight, which proved only temporary, was not the only reason for his abandonment of his projected career. He was of a shy and retiring disposition; he shrank from publicity and was not what is called "a good mixer", and doubtless he felt he was temperamentally unfitted for a career such as the ministry, which entails much contact with other people and the making of new friends. Apparently, however, he continued from time to time to undertake "pulpit supply" in various churches. This is obvious from a reference in a letter to Mr. H. P. Hollis of Greenwich and reproduced in The Observatoryfor March 1902, in which he mentioned evenings "spent in writing sermons or in other work". After he became famous he was generally referred to in books on astronomy as "the Rev. Dr. Anderson" or "a Scottish clergyman". This doubtless arose from the fact that Professor Copeland, in his first communication on the new star to the Royal Society of Edinburgh, read on February 15, 1892, referred to the discoverer as "the Rev. Thomas D. Anderson, D.Sc. in Classical Philology." Strictly speaking, however, Dr. Anderson was not a minister, though fully qualified to become one. In the Congregational Churches, a student is not licensed as in the Church of Scotland: even if he has completed his full training, he does not become "the Rev." until he is ordained to a charge: and Anderson was never ordained.

It was fortunate for Anderson that he was possessed of sufficient private means to enable him to devote his whole time to the study of astronomy, to which he returned with renewed enthusiasm after he had decided to abandon his ministerial career.

In the letter to Mr. Hollis already quoted, Anderson wrote: "I need hardly say that before the advent of Nova Aurigae my 'astronomizings' were fruitless - fruitless, that is to say, so far as the rest of humanity was concerned, but far from fruitless as regarded myself, for there was for me at least a certain joyful calm when after a long evening spent in writing sermons or in other work I threw up the window and, taking out my little pocket telescope, surveyed the never-failing glory of the midnight sky."

"My scannings of the heavens", Anderson informed me, "were productive of a result which I had never anticipated, namely, the discovery of a new star. I had indeed in my boyhood many a time looked out for the reappearance of the Nova Cassiopeiae of 1572; for had not both Goodricke and Sir John Herschel given it as their opinion that the famous nova flashed up every 300 years or so, and might it not therefore be expected at any time? ... I little dreamed, however, that I was to have a nova of my own."

The story of the sensational discovery of Nova Aurigae has been told in many popular books on astronomy. On February 1, 1892, an anonymous postcard was received at the Calton Hill Observatory, Edinburgh, then the Royal Observatory, by Professor Ralph Copeland, the Astronomer Royal for Scotland. The communication written thereon was brief and to the point: "Nova in Auriga. In Milky Way, about two degrees south of Chi Aurigae, preceding 26 Aurigae. Fifth magnitude, slightly brighter than Chi."

Copeland in announcing the discovery said: "At 6 h. 8 m. G.M.T. the star was easily found with an opera-glass. It was of a yellow tint and of the sixth magnitude, being equal to 26 Aurigae. Examined with a prism between the eye and the eye-piece of the 24-inch reflector, it was immediately seen to possess a spectrum very like that of the nova of 1866."

How Copeland came to ascertain the identity of his anonymous correspondent I have not been able to discover, but in less than a fortnight the secret was out. In a letter dated "21 East Claremont Street, Edinburgh, February 13" and printed in Nature, February 18, Anderson wrote: "Prof. Copeland has suggested to me that as I am the writer of the anonymous postcard mentioned by you a fortnight ago, I should tell your readers what I know about the nova. It was visible as a star of the fifth magnitude for two or three days, very probably even for a week, before Prof. Copeland received my postcard. I am almost certain that at two o'clock in the morning of Sunday the 24th ult. I saw a fifth magnitude star making a very large obtuse angle with Beta Tauri and Chi Aurigae, and I am positive that I saw it at least twice subsequently during that week. Unfortunately I mistook it on each occasion for 26 Aurigae, merely remarking to myself that 26 was a much brighter star than I used to think it. It was only on the morning of Sunday the 31st ult. that I satisfied myself that it was a strange body. On each occasion of my seeing it, it was slightly brighter than Chi. How long before the 24th ult. it was visible to the naked eye I cannot tell, as it was many months since I had looked minutely at that region of the heavens."

It soon transpired that the nova had actually been visible to the naked eye, though undetected, since December 10, 1891. On December 8, Max Wolf at Heidelberg had photographed the region round about Chi Aurigae and no strange object brighter than

the eighth magnitude was recorded on the plate, yet it appeared as a star of the fifth magnitude on a plate exposed by E. C. Pickering at Harvard two days later. Subsequent photographs showed that it had increased by half a magnitude by December 20; but these Harvard plates were not examined at the time, and it was only after Anderson had made his discovery that they yielded up their secret. The star had actually reached the fourth magnitude by the 20th, and then began to fade; but when Anderson detected it it was again increasing in brightness and reached a secondary maximum on February 14, according to the famous observer of variable stars, J. E. Gore. Thereafter it faded slowly, and passed through the usual cycle of changes now known to be characteristic of novae.

The discovery of Nova Aurigae brought world-wide fame to the modest, unassuming watcher of the skies at 21 East Claremont Street. The professional astronomers were quick to acknowledge the debt which they owed to Dr. Anderson. But for his discovery the nova would have most likely continued to shine unnoticed, and the important spectroscopic observations and the sensational discoveries which resulted from them would never have been made. The appearance of Nova Aurigae marked an epoch: for it was the first nova whose spectrum was not only observed but photographed.

Anderson's instrumental equipment at the time of the discovery was of the slenderest - only a binocular and a 1-inch refracting telescope. Little had he dreamed of making so startling a discovery. "Naturally", he recorded in his communication to me, "I was greatly pleased at this star. So pleased was I, in fact, with the nova that, like Oliver Twist, I wanted more, and commenced with diligence to sweep the heavens in the hope of making another such discovery." In his letter to Mr. Hollis, he mentioned that he had been much encouraged by Professor Copeland, "who gave me advice as to instruments, charts, catalogues, etc., and told me that my search, if unsuccessful so far as novae were concerned, would almost certainly lead to some discovery or other. Accordingly I at once purchased a large binocular. This I soon reinforced by a secondhand 2¼-inch refractor by the well-known Jesse Ramsden, which shows me stars down to the tenth magnitude: but desiring to see still fainter objects I bought in 1899 a 3-inch refractor by Mr. William Hume of this city. With this last instrument I can on a clear night see stars as faint as the eleventh magnitude." He also procured as many sheets as were available of the famous Bonn Durchmusterung charts constructed by Argelander and Schönfeld, and "filled in the blanks - a rather formidable lot -" he informed me, "by means of charts constructed by myself. These latter contained over 70,000 stars. That was trying work for my poor eyes."

His quest, as he admitted, was "not attended by the success" which he "had at first anticipated." However, while searching for novae he discovered quite a number of variable stars, hitherto unrecognised. The first of these, detected in 1893, was V Cassiopeiae. "It was with a binocular", he informed me, "that I saw V Cassiopeiae shining as a star of the eighth magnitude in a place where I had never before noticed a star, and where the Bonn chart showed only one of the 9½ magnitude. Subsequent examination proved that it was a variable star, then near a maximum. The others down to 1898 were detected with my 2¼-inch refractor, since then with the 3-inch one." These discoveries, if not so spectacular as that of Nova Aurigae, secured for Anderson a place all his own in the astronomical world, so that Dr. A. W. Roberts, another Scottish amateur, who likewise made his mark in variable star work, was able to say without exaggeration about fifty years ago that "no town can claim to its credit so great a number of variable stars as the old grey capital of Scotland." That refers, of course, to visual discoveries only.

Besides his discoveries of variable stars, Anderson interested himself in what his contemporary J. E. Gore described as "the secular variation of starlight." In the case of the star Theta Eridani, he adduced strong evidence to prove that this star, now of the third magnitude, was listed by Ptolemy and Al-Sufi as of the first. His investigations in this field were described in an article contributed by him to the now defunct scientific periodical Knowledge in July 1893 - one of the few occasions when he entered the realm of authorship.

At long last Anderson's perseverance was rewarded by the discovery of another nova. "I found Nova Persei", he told Mr. Hollis, "without either binocular or telescope, when I was casting a casual glance round the heavens." Of course, Anderson's glances were never casual, and "the new star of the century", as it was appropriately named, could not long have escaped discovery. Anderson detected the nova in the early morning of February 22, 1901, at about 2.40. It was then of magnitude 2.7, and Anderson promptly announced his discovery to Professor Copeland at the Royal Observatory, by this time located on Blackford Hill. In his Astronomical Discovery (1905), H. H. Turner gave some interesting particulars concerning the discovery, which he must have got first-hand either from Anderson or Copeland. He stated that Anderson was about to retire to rest for the night when "throwing a last glance upward, he suddenly saw a brilliant star in the constellation Perseus. His first feeling was actually one of disappointment, for he felt sure that this object must have been there for some time past without his knowing of it, and he grudged the time lost when he might have been regarding it. More in a spirit of complaint than enquiry, he made his way next day to the Royal Observatory at Edinburgh to hear what they had to say about it, though he found it difficult to approach the subject. He first talked about the weather and the crops and similar topics of general interest; and only after some time dared he venture a casual reference to the 'new portent in the heavens.' Seeing his interlocutor look somewhat blank, he ventured a little further and made a direct reference to the new star in Perseus; and then found to his astonishment, as also to his great delight, that he was the first to bring news of it." Turner's statement, though made in a public lecture in his characteristically colloquial style, may be taken as generally accurate, except, perhaps, that even if Dr. Anderson were at a loss for something to talk about at the outset, he would scarcely have referred in late February to "the crops," unless indeed to some report of harvesting in the southern hemisphere. Turner, it may be added, was a warm admirer of Anderson, whom he referred to as "the most assiduous watcher of the skies" then living. The nova was detected independently by several other observers, who had not then learned of the Edinburgh astronomer's discovery. This was, of course, inevitable, owing to its brilliance. It increased rapidly in brightness, and on the evening of February 23 it was actually the third brightest star in the entire heavens. Like Nova Aurigae, it flared up very rapidly; for on a photograph taken by an English astronomer, Mr. A. Stanley Williams, just 28 hours earlier and showing stars down to the eleventh magnitude, it was totally invisible. In a letter to a friend, quoted by Mr. J. E. Gore in his Studies in Astronomy (the "friend" was probably Gore himself, a noted observer of variable and temporary stars), Anderson is recorded to have said: "What an

absurd sonnet is that in which Keats brackets together the discovery of an ocean and the discovery of a new celestial world. As if the finding of any terrestrial sheet of waters, however large, could be compared for a moment as a source of joy with the first glimpse of a new glory in the already glorious firmament."

After his discovery of the brightest nova since 1604, a nova which was kept under observation by the great observatories of the world for many months after it was first seen, Dr. Anderson's reputation among astronomers rose still higher. The Royal Society of Edinburgh conferred on him on July 15, 1901, the Gunning Victoria Jubilee Prize. At this meeting, in the absence of president and vicepresidents, the chair was occupied by the Rev. Professor Robert Flint, the distinguished theologian. Dr. Flint, who had some considerable knowledge of science, emphasised that, with reference to Nova Persei, "the value of Dr. Anderson's timely discovery is enhanced by the fact that it afforded astronomers the unique opportunity for watching the course of development in the initial stages of this phenomenon." And he concluded by saying that "it is the desire of the Society to recognise by this award the value and importance of Dr. Anderson's work in a field of astronomical research where results can be obtained only by the most determined perseverance and by an unabating enthusiasm and love of science."

Further honours awaited him. In the same year he received a medal from the Société Astronomique de France: and in February 1902 he made the journey to London to receive in person the]ackson-Gwilt Medal and Prize of the Royal Astronomical Society. This was rather an ordeal for a man of his temperamental shyness and modesty, whose hearing had become impaired, more especially as the illustrious J. C. Kapteyn had come over from Holland to receive the Gold Medal. The late H. H. Turner, writing in The Observatory shortly afterwards, gave his impressions of the two medallists. "Professor Kapteyn", he wrote, "gratified us all by making a stay of a few days in England and bringing Mrs. Kapteyn with him; and he was good enough to say that he found so much to see that he must leave a good deal for another visit. Dr. Anderson (the ideas of a discoverer of two novae are of such public interest that I venture to state the circumstances) returned to his 'stargazing' in Edinburgh very promptly. The big telescopes at Greenwich and elsewhere, he said, did not appeal to him in any way: 'I'm not an astronomer,' he said, 'I'm an astrophil: wherever the stars are shining I must be looking.' And he told me in reply to a definite question that he actually looks for new stars; he knows the heavens so well, especially near the Milky Way, that he does not think one could appear brighter than the sixth or seventh magnitude without his detecting it. His discoveries were the outcome of a deliberate and independent research, not connected with his work on variables, for which he uses Argelander's charts and a small telescope. How numerous are the astrophils? I am glad that it has fallen to my lot to meet at any rate one."

The President of the Society was at that time Dr. J. W. L. Glaisher, and at the meeting held on February 14, 1902, after handing the Gold Medal to Professor Kapteyn, he thus addressed Dr. Anderson:

"Dr. Anderson, it is a great pleasure to me to hand you on behalf of the Society the Jackson-Gwilt Medal in recognition of your discovery of both Nova Aurigae and Nova Persei. Nova Aurigae was discovered by you on Februray 1, 1892, when it was of the 4th magnitude, and but for your discovery it might have escaped observation. Nova Persei was discovered on February 22 of last year at 2.40 a.m. when of the 2.7 magnitude and low down in the sky. This early discovery of yours made it possible for Pickering to obtain its spectrum before its maximum was reached."

"It is no small matter to have discovered one of these novae, but it is a veritable tour de force, such as a priori would have seemed almost incredible, to have discovered both, and I am delighted to have the opportunity to congratulate you on your success and do honour to your astronomical zeal and intimate knowledge of the sky .... I ought perhaps to refer at greater length to the number of variable stars - no less than thirty-eight - that you have discovered: but on the present occasion I should prefer to restrict myself to the subject of the award, your wonderful discoveries of the two great novae of our time." Unlike Kapteyn, who made a short speech on receiving the Gold Medal, Anderson characteristically received his gift in silence: at least, there is no record in the account of the meeting of any words in reply.

In the spring of 1904, Anderson and his two sisters Magdalene and Jean quitted their home in East Claremont Street and left Edinburgh for good. The prime motive was for Anderson to get better observing conditions. He told the late Professor Sampson that he had removed because of the installation of electric light outside his house. They settled at Northrig, near Haddington, and there they remained for about six years. In 1910 they moved to Thurston Mains, Innerwick.

In June 1918 Anderson's name came again prominently before the public. On June 8, a still brighter star than Nova Persei blazed out in the constellation Aquila, and it did not escape the notice of Dr. Anderson. Immediately he saw the star he telegraphed his discovery to The Scotsman in the following words: "Thurston Mains, Innerwick, East Lothian: A new star of the first magitude as bright as Vega has burst out in the constellation of the Eagle. Its right ascension is 18 hours 45 minutes, and its declination is half a degree north. It shines at present with a blue light." In this instance, however, Anderson was forestalled by several other observers. This was not surprising, for Nova Aquilae exceeded Nova Persei in brightness and was bound to have been discovered independently by anyone who knew the constellations. Though Anderson was not the first to detect Nova Aquilae, as he was the first to see Nova Persei, he must be reckoned as one of the discoverers. On June 9 the nova reached its maximum (magnitude -1) when it outshone all the stars visible in northern skies. Then the inevitable decline set in.

In May 1923 Dr. Anderson announced the discovery of yet another nova. In the early hours of the morning of May 9 he noticed an unfamiliar star of between the fifth and sixth magnitude in Cygnus, and at once telegraphed the news to Greenwich. Next morning Dr. W. H. Steavenson secured a photograph of the region in question and found no trace of any new star brighter than the twelfth magnitude, and other photographs were equally decisive. At the meeting of the Royal Astronomical Society on May 11 the mystery came up for discussion. Dr. Steavenson suggested that Anderson had been mistaken, but Professor Sampson took the opposite view: "I quite agree with Dr. Steavenson", he said, "as to the evidence given by his photograph and some may well be impatient in their fruitless search for the nova. But we may remind ourselves that Dr. Anderson has discovered two novae - Nova

Aurigae and Nova Persei in 1892 and 1901 respectively - and received the Jackson-Gwilt Medal of the Society for doing so .... He is a keen observer and is said to know the entire visual heavens by heart. That he made a mistake seems to me to be most improbable and I fail to understand the matter." The Rev. T. E. R. Phillips suggested that Dr. Anderson might have been using an old atlas, and have concluded that a star not shown was actually a nova.

Dr. Anderson, however, maintained that he had not been mistaken. In a letter to Sir Frank Dyson dated May 15, he wrote: "That in the early hours of the 9th instant ... a great stellar outburst was visible near 69 and 70 Cygnus I am as sure as that I am now sitting here at Thurston Mains writing this letter to you." In a later communication to me dated July 19, he reaffirmed his belief in the reality of his discovery. "I feel pretty certain", he wrote, "that the nova is to be identified with BD+35° 4505, a star of the ninth magnitude." This star, he thought, had suddenly increased by between three and four magnitudes and had within a matter of 24 hours reverted to its normal brightness. "The increase of brightness in the case of this Nova Cygni," he said, "was small - only three magnitudes - and the subsidence was exceedingly rapid."

In the letter to Sir Frank Dyson already quoted, Anderson admitted that his nova had "faded away with miraculous rapidity"; but, he asked, "if there are novae which, like Eta Argus, take centuries to go through their evolutions or, like the great nova of 1572 take years, or like the majority of them take months, or like the Nova Coronae Borealis of 1866 take six weeks, why may there not be stars whose temporary outbursts are ended within a few hours?" This hypothesis, seemingly fanciful at the time, now appears much more probable. Dr. W. J. Luyten, in 1948, discovered that a red dwarf binary star in Cetus flared up to twelve times its normal brightness and subsided again in 20 minutes: and in 1952 the same star - UV Ceti - in creased by five magnitudes in 20 seconds. Several other "flare stars" have since been detected. There are, then, "stars whose temporary outbursts are ended within a few hours." So it is not impossible - we might even say it is quite probable - that Anderson's Nova Cygni of 1923 was actually the first "flare star" to be discovered.

The letter of July 10 was the last which I ever received from Dr. Anderson, and after this date I never again saw his name in print. In 1926 he and his sister removed from Thurston Mains to another farmhouse, Stuartslaw, in the parish of Edrom, Berwickshire. Two years later he suffered a slight stoke, from which he made a complete recovery. During his enforced rest he took up the study of Danish and Russian and learned to read books by famous authors in both of these languages. After his recovery he was busily occupied with the care of his vegetable garden by day and "watching the heavens" at night. In 1931, however, his strength began to fail, and he died at Stuartslaw on March 31, 1932, in his 80th year.

He was buried beside his sister Jean in the kirkyard of Innerwick and over nine years later their sister Magdalene was laid beside them. Only his name and the date of his death were engraved on the tombstone, so that no one passing through the kirkyard and reading the inscription could possibly be aware that the stone marked the restingplace of so distinguished a man.

Now it is otherwise. On May 22, 1954, a service of commemoration was held in Innerwick Church, attended by members of the Council of the Astronomical Society of Edinburgh, to mark the occasion of the inscription of the following words on the family tombstone:

"The above THOMAS D. ANDERSON was a famous astronomer who discovered 3 temporary and 53 variable stars.

Inscribed by the Astronomical Society of Edinburgh to mark the centenary of his birth."