POLARFRONT

Medlemsblad för svenska meteorologiska sällskapet

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The River Thames Near Kemble II

Oljemålning av Bill Pike. Se beskrivning av bilden på sid 4.

William (Bill) S. Pike är tillsammans med Tage Andersson författare till artikeln om "Young Tor Bergeron" sid 5.

Om Tor Bergeron

Tor Bergeron har fortfarande fans. En av dem är en engelsk konstnär, Bill Pike, som har arbetat på Met Office, och har professionella kunskaper i meteorologi och klimatologi. Han har skrivit bifogad artikel om Tor Bergerons barndom. Jag har hjälpt till med lite släktforskning.

Få nu levande meteorologer har träffat Bergeron. Många av de nu aktiva var inte ens födda då han gick bort. En påminnelse om honom är motiverad.

Nedan en kortpresentation av Bill Pike.

Konstnären Bill Pikes hemsida (http://www.billpike.co.uk/) har rubriken Bill Pike – Water and Reflections. I programförklaringen läser man (min översättning): Vatten substantiv, en färglös, luktfri vätska.

Ändå har vatten, särskilt en vattenyta, så många underbara skiftningar, som vi betraktar självklara eller inte ens märker, trots att vår vardagstillvaro i hög grad dikteras av vatten.

Bill Pike är också amatörmeteorolog och klimatolog, och har arbetat på Meteorological Office, England. Han har författat åtskilliga vetenskapliga arbeten om nederbörd och dess geografiska fördelning, speciellt i Weather, International Journal of Meteorology and Meteorological Applications. Då upptäckte han och refererade ofta till Tor Bergerons (1891-1977) arbeten. Bergeron föddes i England, av svenska föräldrar, och tillbragte sina första år där. Artikeln "Young Tor Bergeron" i detta nummer av Polarfront ger något om Tor Bergerons tidiga barndom.

Tage Andersson

Beskrivning av bilden på framsidan

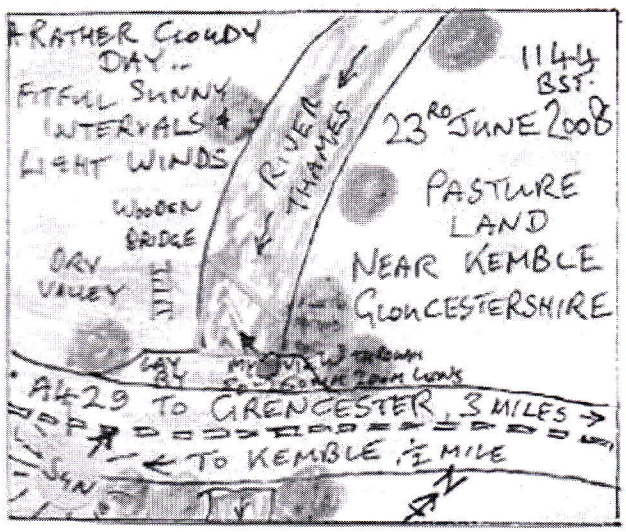
The River Thames Near Kemble II

Size: 0.92m x 0.61m **Medium:** Oils on canvas

May-Jul 2009

This is where the constricted little River Thames flows beneath the A429 Kemble to Cirencester Road. Larger Cornbrash Limestone rocks that have been deposited here in turn collect Ranunculus which have been washed along in the water flow and begin to take root then flower. Never more than a few cms/inches deep here, the water is perfectly clear over a gravelly bed in the foreground.

Bill Pike



YOUNG TOR BERGERON

By

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and

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ABSTRACT: We present information here about the birthplace, also some family background, and education of Tor Bergeron (1891-1977) before he became perhaps the best-known Swedish Meteorologist outside of his own country, famous for inventing frontal and weather-plotting symbols on charts, detecting the meteorological occlusion process and also later, his precipitation investigation work

1. HISTORICAL NOTE

Denmark ceded Norway to Sweden In 1814 and then, after a brief conflict, Norway entered into a personal and peaceful union with Sweden which lasted for much of the reign of the multi-lingual King Oscar II (1829-1907) until 26 October 1905, when Norway became a separate Kingdom. Prince Carl of Denmark then made accession to the Norwegian throne (as King Haakon VII) on 18 November 1905.

Also in 1905, Vilhelm Bjerknes, (born 1862 in Christiana, which from 1925 was renamed Oslo), travelled to the USA and obtained funding from the Carnegie Foundation to study meteorology and the problems of weather forecasting, at first in his native Norway. The Carnegie Foundation provided Bjerknes with an annual stipend, which was to last until 1941.

In 1910, when Bjerknes was working at Christiana, there were only four Coastal Stations around Norway that were plotted regularly on the German "Kaiserliche Marine" daily weather charts; namely Vardö, Bodö, Kristiansund, and Stavanger-Skudenes. In Sweden there were just five stations being plotted; Haparanda, Härnösand, Stockholm, Visby, and inland at Karlstad.

In 1912, Bjerknes accepted the Chair of a newly-founded Geophysial Institute at the University of Leipzig in Germany, where he stayed from 1913 to 1917 Then following German wartime food shortages. In 1917, he returned to the University of Bergen, helping the Oceangrapher Björn Helland-Hansen establish a similar Geophysical Institute in the then-neutral Norway.

Astonishingly for 1918, Vilhelm Bjerknes was granted 100,000 Norwegian Krone from the Storting to establish a practical forecasting service for Farmers and Fishermen in Western Norway from Kristiansand to Trondhjem, a grant which allowed more observer-stations to be established around the coast in the wartime absence of weather information normally received from Britain. (Jewell, 1980-81).

2. INTRODUCTION

Towards the end of World War I, on November 2 1918, Tor Bergeron, aged 27, was working at the Meteorologiska Anstalten, located in the Royal Academy of Science building at Stockholm, when along came Jack Bjerknes (Vilhelm's son) and Halvor Solberg, aiming to interest him in their new cyclone and frontal concepts at Bergen.

Excited by the prospect of working in this new field of research, It was arranged that Tor should move to Bergen the following Spring, which he did on March 1,

1919, taking with him observations from coastal light stations held at the Swedish Meteorologiska Centralanstalten, with an aim of testing the "Bergen Cyclone Model Theory", starting with the case of September 30, 1918.

Early results were promising, and, in July 1919, Bergeron took on the task of enlarging the weather observing network among amateurs, by sending out blank observation forms to people whom he judged might willingly co-operate with the research work by providing observations (e.g., coastal lighthouse keepers, private diarists, climbers and walkers, inland rainfall observers, and "Sunday Sailors"). He sent a supply of these forms to a particular Swedish yachtsman, writing:

"Take them with you on your sailing trips, and try to note down an assessment of the visibility of distant islands, or the weather and wind at 8 a.m.,1 p.m.,or 8 p.m.,sudden changes in the wind, or times of the onset of rain...Try to distribute them among other sailing folk, mountain hikers and the like....Even isolated observations can be valuable if they are made on a day which we shall thoroughly examine..." (Jewell, 1980-81, p.485).

Through working long shifts at Bergen and having to plot the various observed weather phenomena on charts, Bergeron can be credited with having devised and popularised many of the now-familiar symbols for 'present weather' that are still used on today's charts (Monmonier, 1999, Plate 4) The story behind Bergeron's first drawing and analysis of a frontal 'occlusion' on the evening chart for 18 November 1919 is given in Jewell, 1980-81,also the original chart has been framed and hung in Bergen Geophysical Institute's restaurant (personal correpondence with Prof. S. Grönås). On a visit to Leipzig, Bergeron drew warm and cold fronts, with the now-familiar 'bowler hats' and 'shark's teeth' symbols, on a card sent to Jack Bjerknes dated (by postmark) January 10, 1924.

Thereafter, Bergeron (1933) first described the theoretical significance of ice particles growing into snowflakes as they fell through cloud composed of supercooled water droplets, these snowflakes growing at the expense of the cloud droplets through which they fell. This became known as "The Bergeron Process", or sometimes as "The Bergeron-Findeisen Process", after the contribution of the latter in Germany in 1938.

Bergeron again established a network of amateur weather observers when looking at locally-heavy snowfalls on the east coast of Sweden, in what he called his first "snow campaign" of 1942, appealing for measurements of snow depths to be made at certain times. (Andersson, 1980-81, pp.559-560). Formed by convergent low-level airflows, what Bergeron observed to be lines of "dwarf Cumulonimbus" forming convective 'snowbands' (today also called 'streamers' or 'canons' from the radar precipitation pictures) have been studied (from January 1987 onwards) by both the current authors, using modern satellite and radar imagery.

Much of the last 35 years of Tor Bergeron's life were devoted to precipitation studies (e.g. "Project Pluvius"), and, when describing the intensification of rainfall over hills and mountains, he introduced the terms 'feeder' and 'seeder' clouds in 1959 (Bergeron, 1960; Andersson, 1980-81, p.572). Andersson also explains coining of the word "oreigenic" (in Bergeron, 1961) which Bergeron used to describe enhancement of rainfall where the air has been forced to rise over high ground.

However, we knew little of Tor Bergeron's early life and family history, other than hearing first-hand that he had been born in England of Swedish parent-

age and had "always been interested in the weather".

3. MATERNAL BACKGROUND

Tor Bergeron's maternal grandfather was a clergyman, Johan Jacob Stawe (b. September 9, 1817) living in the small community of Rade in Sweden. Tor's mother was their seventh and youngest child, Hilda Elisabet Stawe (b. November 25,1866), the 'baby' of the family, with four elder sisters and two elder brothers. We come across all four sisters later on, namely Ida Emilia (b. March 26,1852); Gerda Maria (b. June 29,1854); Anna Christina (b. June 11,1856); and Ewa Johanna (b. October 28,1860). As a child, Hilda moved with the Stawe family from Råda to Hassle on May 4,1868, and then on to the University town of Uppsala on April 24,1873.

Hilda Stawe was a talented singer who achieved fame early as a teenager in Sweden, living in Osmo until November 1883; then she accepted a job as a music teacher in Walsjö Säteri. Thereafter, in 1866 she moved to Lundsberg, teaching music and singing privately some ten years before the famous Public School was established there in January 1896.

4. PATERNAL BACKGROUND

Tor Bergeron's paternal grandparents were adventurous entrepreneur also successful businessman, Clemens Hebbe (1804-1893) and the first female Swedish Journalist at Stockholm's "Aftonbladet" (The Evening Paper), Wendela Hebbe (1801-1899). A prominent Swedish Politician, Art Historian, and Chief Editor of the "Aftonbladet", August Sohlman (b. May 24, 1824), made an extra-marital relationship with Wendela's Actress daughter, Thecla Hebbe (b.1835), who subsequently gave birth to their son, Armand, in the Toinville-le-Pont district of Paris on June 24, 1861. Sadly, Armand's mother, Thecla, died soon afterwards of tuberculosis on September 29,1861, and young Armand was eventually adopted in Paris by a childless Swedish couple, Frederik and Constance Berggren, who gave the little dark-eyed boy their name, written as 'Bergéron' in Paris, with the French accent over the second 'e'.

Unfortunately, Frederik's economy failed, and he died in Paris, in 1872. As a friend of the relatively-successful Wendela Hebbe, Constance Bergéron then returned to Sweden with young Armand, but soon afterwards, in 1874, another tragedy occurred, when the boy's biological father, August Sohlman, died in a sailing accident near Stockholm.

Although she had effectively married again (with Lars Johan Hierta, founder of Aftonbladet), Wendela adopted Armand and looked after him as his grandmother in Stockholm, where he ran errands for her when she became ill in 1875 (Hebbe 1997). Wendela hoped Armand would attend the University of Uppsala, but he preferred to find his own independence, and to earn some money of his own. He had moved to London by October 1879, working in the office of Torsten Nordenfelt (1842-1920) who later became famous as the torpedo-tube designer.

In England, Armand dropped the French accent on his surname, Bergeron, and also became very interested in postage stamps. This consuming interest soon became Armand's profession, and through a shared passion for philately, he appears to have met the Canadian philanthropist, Dr Henry Atkinson Tuzo (Farmer, Medical Doctor, and later, a Banker) who was establishing a small boarding school for boys called "Hillside" (built 1885, opened 1886) at Warlingham in Surrey (Figure 1).

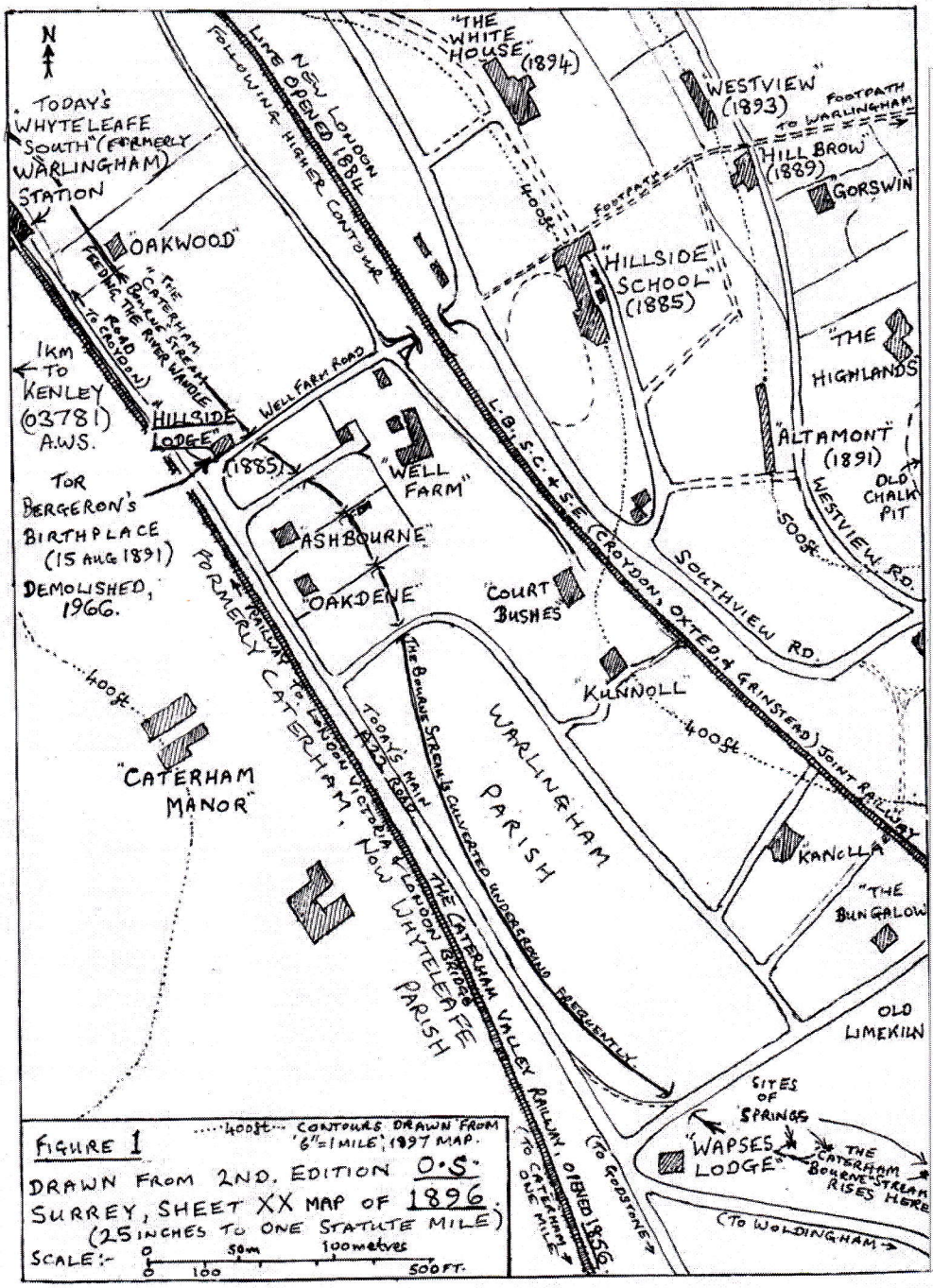

FIGURE 1:- Large-scale Map giving the Surrey location of Tor Bergeron's birthplace, "Hillside Lodge", at National Grid Reference TQ 343577, beside the Bourne Stream. Dates in brackets (e.g., 1885) give a building's first appearance in a street directory, indicating when it was first built and occupied. The ancient Civil Parish boundary between Warlingham (Saxon home of Waerla's People) and Caterham (the place of a Prehistoric Hill Fort) followed the Bourne Stream. This part of Caterham Parish (north of Wapses Lodge) was subsequently re-named "Whyteleafe". Map drawn by W.S.Pike, based on the Ordnance Survey "6 inches to one mile" and "25 inches to one mile" maps of 1896 and 1897.

Dr.Tuzo was a Canadian who had met his English wife Laetitia when she was touring Canada, and they were married in 1872. Then in 1878, the Tuzos bought at area of then-open hillside, some acres in extent, with future development in mind. The first house "Hillside School", was erected on ground levelled to make an artificial terrace and, together with its gatehouse, "Hillside Lodge", both were completed in 1885 (Tutt, 1999).

5. TOR BERGERON'S BIRTHPLACE

It seems probable that Amand Bergeron was the first occupier of newly-built Hillside Lodge, but exactly how and where he met his future wife remains a mystery. A strong possibility is that Hilda Stawe answered an advertisement for a Music Teaching position at the new Hillside School in England, or perhaps Dr Tuzo had links with Sweden already. What is certain

from Swedish records is that Armand Bergeron married Hilda Stawe on July 18, 1889 at Finnerödja in Sweden, where two of Hilda's sisters, Ewa and Ida, were already living. Ida had married the local Finnerödja Vicar, Revd. Lundblad, who very probably also performed the wedding ceremony.

The following year, 1890, saw yet another tragedy when Dr Henry Tuzo met an untimely end in is late fifties. The April 1891 Census for Surrey shows Armand Bergeron as the married Head of "Hillside" (Lodge)...in what was the Rural District of Warlingham, and the Civil Parish of Caterham, although this area has subsequently been re-named "Whyteleafe". Armand's occupation was a "Dealer in postage stamps for collections" and his birthplace was stated as "Toinville-le-Pont, Paris". Other occupants of the house that day were Armand's wife, Hilda (then five months pregnant with Tor); also Hilda's unmarried elder sister, Gerda Stawe, Age 36, with occupation written as "Governess, School"; and finally, a local, live-in servant girl, Elizabeth Budgen, born in Croydon.

Following Dr Tuzo's death, Gerda may well have been employed as a temporary Governess at Hillside Shool by his widow, Laetitia, although Gerda was (in 1890) still officially recorded as being the School Governess at Aspåsen in Sweden. Alternatively, in April 1891, Gerda may have simply been visiting her pregnant sister, Hilda, in England over the Easter Vacation. Gerda did eventually emigrate to England officially for a time as a Governess, but Swedish records state this was not until December 13,1894, when she travelled from Gothenburg to London. However, the Stawe sisters were very 'close' as family members, and it seems quite possible that Gerda may have been present when Tor was born.

A birth certificate (Figure 2) for Godstone Registration District of Surrey tells us that Tor Harold Percival Bergeron was born (at home) on 15th August 1891 at Hillside Lodge in Warlingham Rural District ("R.D."). Figure 1 shows this house was located on the northern side of Well Farm Road, close to what is now the main A22 Godstone to Croydon Road. Just beyond the A22 road runs the older railway line, which linked Caterham with London, and 'dropped Hillside pupils off' at the nearby station (which is now re-named as "Whytleafe South").

Ordnance Survey maps dating from 1896-97 (upon which Figure 1 is based) show that Hillside Lodge was, at that time, just within Caterham Parish. However, on the other side of the ancient boundary, which followed the Caterham Bourne Stream, Hillside School lay in Warlingham Parish. Only at a later date was that narrow part of the Caterham Valley containing Hillside Lodge re-named "Whyteleafe, to the north of Wapses Lodge Roundabout.

After 1900, "Hillside" became a Boarding School for young ladies, and was renamed at first as "Eden College", then later as "Ravenscroft". Laetitia Tuzo continued to live in "The White House" until she died in 1930, when the gate at the end of Well Farm Road was removed, and "Hillside Lodge", where Tor had been born, was renamed "Hillside Cottage".

Miss Dorothy Tutt of The Bourne Society fortunately took several photographs of Tor's birthplace on 5 May 1961 (Figures 3, 4 and 5) just five years before, along with Well Farm, it was demolished to make way for major re-development of the area in 1966. Well Farm Road is still there today, although now having a widened tarmac surface in a built-up area (Tutt, 1999).

(Hebbe, 1997), whereupon Tor's Father, Armand, promptly caught rheumatic fever and died, Swedish records show, on January 29 1898, at Sturegatan 6. Then, that following year, in 1899, Wendela also died,, but left the considerable sum of 10,000 Sw.Kr. for young Tor's education in her Will.

The Swedish Census for 1900 tells us that young Tor was living with his mother, her elder sister Anna Stawe, and two other women (Eugenie Wrangel, b.1837, and Ellen Fagergren, b.1879) all at 9 Tyskbergagatan in Hedvig Eleonora Parish in Stockholm. This was in the same fashionable Parish as Wendela had spent her last years. Incidentally, Gerda Stawe had returned to Sweden by this time, when she is recorded as also living in Stockholm, being the Governess to William Olsson and his family at a Strandvägen apartment.

A portrait of young Tor smiling broadly (Figure 6) was almost-certainly painted in Stockholm in 1901 by Johan Oscar Cantzler (1844-1921). We speculate that this was done after Tor had heard the good news that he had been given a place at Lundsberg School, because, in that era, Portraits were usually commissioned to celebrate a special occasion in an eminent person's life. Cantzler was a renowned Swedish Landscape and Portrait Painter who had studied Art in Paris, and this portrait of Tor is currently in a Private Family Collection in Stockholm.

In the 1906 Swedish Census, Hilda Bergeron was listed as a "Teacher of Singing" then living at Birger Jarlsgatan 109 in Stockholm, so, it was no accident that young Tor had become a keen singer also. At Lundsberg School, Tor became an avid photographer, apparently filling albums with hundreds of his photographs, including various aspects of weather, and the clouds in particular! Tor stated later that he had studied clouds at Lundsberg and "had begun to observe them closely in 1908" (Jewell, 1980-81, p.483)

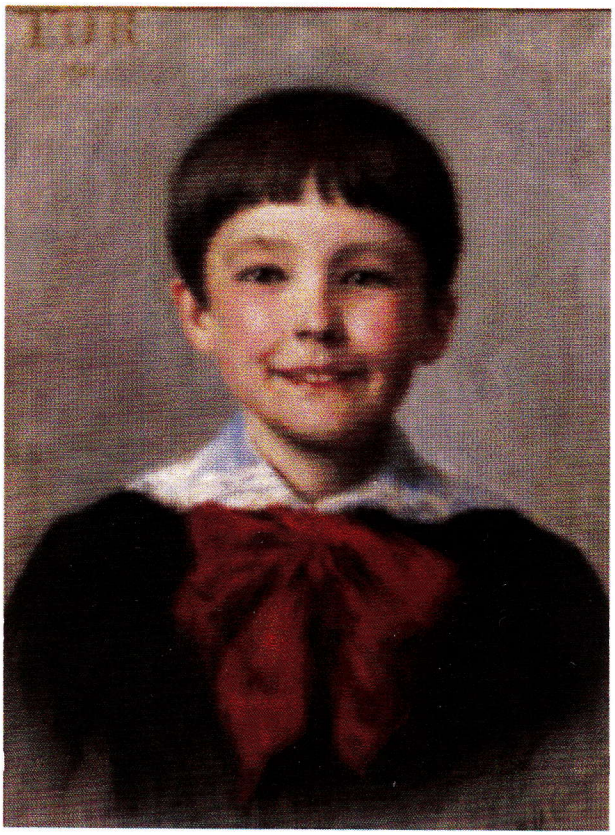

FIGURE 6:- An oil portrait painting of young Tor Bergeron, aged about ten years old in 1901, by Johan Oscar Cantzler (1844-1921). Reproduced by kind permission of Nils Bergeron

Also while at Lundsberg School (perhaps the Swedish Eton College), Tor had already linked a cold air outbreak with the passage of a depression. The rest, as they say, is History, but we might add that the Meteorological Community is notoriously conservative, and it was not until 1929 that his new plotting symbols for the weather became universally ratified and accepted at the International Synoptic Codes Meeting in Copenhagen that year.

7. ACKNOWLEDGEMENTS.

We wish to thank both the Swedish 'Genline' and 'SVAR' Information Services that have kindly contributed to this paper by supplying Bergeron Family History Records.

In England, our thanks are due to the General Register Office (GRO) Certificate Services at Southport, Merseyside, for supplying Tor's birth certificate, and Copyright permission (for Figure 2 to be reproduced) came from Graeme Paterson at The National Archives of the UK, at Kew. We also wish to thank the Surrey History Centre at Woking for their help with finding the Bergerons in the 1891 Caterham Census Return, and to Duncan Mirylees for subsequent correspondence.

We are most grateful to Barbara Lincoln, Manager of Warlingham Library and also to Miss Dorothy Tutt, Vice-President of The Bourne Society, for their kind help in supplying photographs, and especially for their useful comments, in subsequent correspondence. We are indebted to Nigel James and his Staff at the Bodleian Library Map Room, Oxford University, where information which enabled Figure 1 to be drawn was gathered from large-scale 1896-97 Ordnance Survey maps of Surrey.

Finally in Sweden we are most appreciative of Nils Bergeron's kindness in allowing access to his painting of Tor Bergeron as a boy by Cantzler, and for permitting the photograph of this painting to be used as our Figure 6 here. Also, we should not forget to include Bengt Dahlström for valuable discussions.

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(MIUM = Meteorological Institute of Uppsala Univ., Meddelanden (Communications))