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C O U N T Y C O U N C I L

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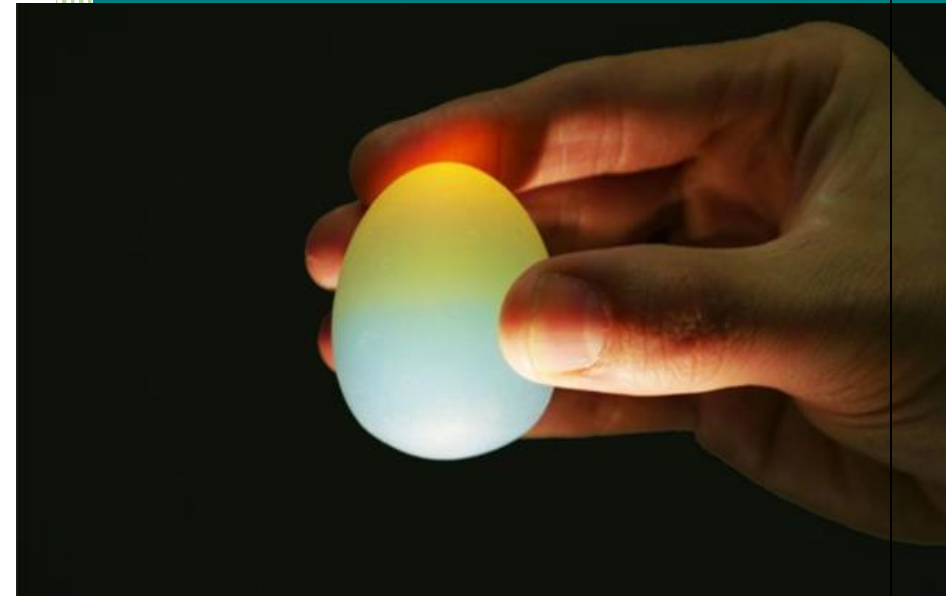


Public Art Commission

ARTISTS BRIEF

Leighlinbridge County Carlow

Celebrating the Life and Work of Climate Scientist – John Tyndall



Carlow County Councils Public Art Working Group invite Artists to tender for this new Public Art Commission that will be managed by the Arts Office of Carlow County Council. We wish to commission an artist(s) to develop a suitable public art work that marks the life's work of John Tyndall as we celebrate the 200th Anniversary of his birth. Tyndall was the great 19th century climate scientist, educator and mountaineer, who was born on Main Street, Leighlinbridge, County Carlow. Details are outlined in the following brief.

Location: In the Garden of Remembrance, Leighlinbridge, Co. Carlow, Ireland
or in a suitable location within close proximity to this central site/location

Timescale: To be completed by August 2021.
(Please note this deadline maybe subject to change depending on Covid 19 Restrictions at the time).

Deadline for Applications: 12noon 4th March 2021

Budget Available: €98,000 fully inclusive of VAT, all materials and all necessary installation costs.

1. Background

Leighlinbridge is located in a very scenic rural location in south Carlow and tourism is a core component of its economy. The village enjoys a broad range of local and visitor amenities and assets. These include Ireland's first five star garden centre, Arboretum Home and Garden Heaven, the four-star Lord Bagenal Hotel, a series of four gardens designed by the local community which collectively feature on the Carlow Garden Trail and a fascinating collection of heritage and history in the form of local monuments including Leighlinbridge Castle, former malt houses that reflect the trade of previous centuries, the locations of Ireland's first Carmelite monastery and the attractive Maurice Jakis designed bridge dating to 1320, the oldest in Ireland. It was the former location of Ireland's second largest butter market and the ancient seat of the Kings of Leinster is located at nearby Dinn Righ.

The village has a long list of famous names associated with it including John Tyndall, Granuaile (Grace O' Malley , the Pirate Queen), Cardinal Moran, first Cardinal of Australia, Cardinal Cullen, Ireland's first Cardinal, Professor Robert Donovan, Myles Keogh, who fought with Custer at the Battle of the Little Big Horn, William, J. Delaney, twice president of UCD, Michael Maher, famed psychologist, Walt Disney who visited the village in 1932 and whose ancestors are buried close by. Brian Mulroney, former Prime Minister of Canada, visited the village in 1982 to see the graves of his ancestors. Ireland's first all-county World War 1 memorial is situated within the Garden of Remembrance while the heritage trail re-purposed by Fáilte Ireland and Ireland's Ancient East in 2018 tells the story of the village, its origins and famed alumni in a series of storytelling panels and directional signage. The River Barrow, Ireland's second longest river, is a distinct feature of the village and offers a range of activities including walking along its 114km towpath, a designated national way marked way. The route stretches as far north as Robertstown in County Kildare and as far south as St. Mullins in County Carlow while canoeing, fishing and bird watching/bio-diversity are also frequently enjoyed.

For many years the famous alumni of the village have been commemorated and celebrated with a variety of memorials in the Garden of Remembrance, a very well maintained and beautiful garden by the banks for the River Barrow. As well as being the garden of remembrance, this location is at the heart of the village and whilst there are others commemorated here this is a central location that we ask the artist to consider. The Public Art Working group are also open to artists suggestions in close proximity to this central site as there are key landmarks within the village that may also be considered. Also, John Tyndall as a boy walked to school along the Barrow Track to the nearby village of Ballinbranagh which is a beautiful natural amenity to the local area.

John Tyndall was educated locally before being employed by the Ordnance Survey, eventually being transferred to England. In 1848 he went to study in Marburg University, Germany, under Robert Bunsen. It is likely that he was the first Irish person to obtain a PHD. He returned to England and became the Professor of Natural Philosophy at the Royal Institution, London, where he emerged as one of the great scientists of the 19th century. In 1860 he wrote a paper on the absorption of gases, the founding paper on climate science and change. He was the first person to discover the 'Greenhouse effect'. He worked with French scientist, Louis Pasteur, on his germ theory and Tyndallisation is still widely used for cleanroom techniques. He was a passionate speaker and educator. He became a very proficient mountaineer, there are several mountain peaks, including one in the Alps, named in his honour. As a result of his pioneering work, several glaciers along with a crater on the moon and planet Mars are named after him! This is just the tip of the iceberg on his life's work and achievements.

2. Local Research and Further Background Material

The following research and materials have been developed by key local figures in Carlow who have studied the life and works of Tyndall over a number of years and are key contributors to this commission. This research acts as anecdotes and/or inspiration for the artist to artistically interpret and consider when submitting your proposal.

The life, work and legacy of Tyndall is as relevant today in contemporary times. Now more than ever as we consider our place in these uncertain COVID times our scientists and environmentalists are critically important and the contribution Tyndall has made to science and to the world we live in today has to be given the recognition that it deserves. Connecting the legacy of Tyndall is hugely significant in this commission and recognising his work from a local Leighlin born man to his life's work extending and influencing far wider as an inspirational figure to today's environmentalists is key.

Attached for illustration purposes only are maps that depict the breadth and reach of the work of Tyndall in Appendix 1 with a photograph showing Tyndall himself which the artist may wish to consider and The Tyndall Colour Series in Appendix 2, as outlined by Dr Norman McMillan C.Eng, FEI, C.Phys, F.Inst.P, FRSA, M.SPIE (CEO, ANT Ltd).

(Carlow County Council - Public Art Working Group would like to acknowledge the assistance of gathering this research and the following people involved, Eileen O'Rourke, Carlow Tourism, Dermot Mulligan, County Carlow Museum Curator, Randal Dempsey, Martin Nevin, Dr Norman McMillan and the Leighlinbridge Improvement Group).

Tyndall's Main Contributions to Science

The contribution made by Tyndall to science and humanity was multilayered and incredibly diverse. His researches have from 1853 included the systematic development of a powerful and unique experimental method developed in the Royal Institution of GB and his method is a continuation of that of his mentor Michael Faraday. They both connect experimental observation to philosophical speculation on the physics of the phenomena in a profound way that has perhaps never been equaled in the history of science. Faraday and Tyndall connect directly and the fact that the Leighlin man can stand with Faraday is truly remarkable. Without a shadow of doubt, the most important of Tyndall's researches that makes a coherent grouping is the work on evolutionary science, beginning with glaciology, IR spectroscopy and light-scattering, climate science, sterilisation and the germ theory, and not overlooking his role in physics education. All these key life studies of Tyndall are incredibly inspiring aspects that the artist may wish to consider in submitting a proposal.

Also, all of Tyndall's studies connect directly to Tyndall's adventures in the Alps. Tyndall was the public face of the new sport of mountaineering in the 1850s and undoubtedly the most famous Alpinist in his day this aspect of Tyndall's life may be of interest in a depiction of the Matterhorn with the twin summit and possibly artistic reference Tyndall's enormous contribution to the modern sport of mountaineering. The use of the local

blue Carlow limestone would be an appropriate link to Tyndall's glaciological studies and work in several ways and connecting to the Victorian Age debates on the colour of ice (blue) and its role in evolutionary theory.

The representation of Tyndall's amazingly diverse researches cannot possibly do more than highlight the crowning achievements of the man. Given the pioneering work of Tyndall and the breadth and reach of his work internationally, the art work will need to be impactful and powerfully reference to his scientific achievements that communicate visually and indelibly Tyndall's scientific legacy.

The commission could through imaginative use of simple technology (vital it can be maintained without any major effort and cost) such as the use of water pumps and LEDs conceptually provide some startling insights to Tyndallic inventions. The first experiment ever done by Tyndall while a boy in Leighlinbridge was to develop water jets, and it was no coincidence, that Tyndall's first standing ovation in his career was in 1853 Royal Institution of GB Discourses closing with a water jet demonstration. He showed the light piping down a water jet with stunning demonstrations of novel "starting light effects" from the end of the water-jet light pipe.

Tyndall Colour Series may be considered in this commission. Tyndall founded the science of light scatter (nephelometer) and the full description and cause of fundamental light-scatter colour series. The attached (**Appendix 2**) is an explanation of this series which shows the colour of the sky (Tyndall Blue), sunrises/sunsets, colour and phenomena of clouds and milk (Tyndall white scatter). Nephelometry is today the basis of most laser spectroscopic analysis using scattering in medical diagnostics and elsewhere. The most appropriate way to describe this would be white light piped down a water jet showing the scattering colours from blue to red to white.

Tyndall was more than a lecturer, he was a scientific performer. He was in the second-half of the 19th century recognised as the most celebrated public lecturer in his day. In three decades of lecturing a recurrent theme of light and water was developed. His last lectures were on rainbows but began with his first researches in London on geysers. His very important books on glaciers and alpine phenomena connect to those on light and sound. The logos of the four Ivy League universities Harvard, Yale, Penn State and Columbia are also critical to the life of Tyndall given that from 1872-3 his critical lecture series of the East Coast of the USA by Tyndall raised what today would be billions to build the first research facilities in these now leading centres of research.

Tyndall's philosophical legacy comprises both practical contributions, through his vital and original research on evolution, but also, his significant theoretical philosophical contributions. It would be appropriate to make it clear that the international battle over Darwinian theory had at its very heart Leighlinbridge. Leighlin's Archbishop Moran was a fellow student of Ballinabranra National School. Moran it should not be forgotten became Tyndall's opponent in these historic debates over the Age of the Earth. Tyndall's role in philosophy and Darwinism should and could be represented artistically, remembering he gave the first modern presentation of this theory in his 1874 British Association for the Advancement of Science Presidential Address in Belfast. It should be noted however Tyndall's most important philosophical contribution was establishing a

recognition of the central role of human imagination in the development of science and technology. He was a founder of the creed of agnostic and was not a materialist. He was very clear on the need to divide religion from science.

Consideration could be given to the representations of some of these further important contributions of:

- Diamagnetism which Tyndall's first researched in Germany with an effect represented by perhaps levitating droplet;
- IR spectroscopy with water molecules vibrating with oscillations, wagging, scissoring etc. oxygen and ozone molecules shown because he differentiated one from the other spectroscopically;
- the geyser; the fog horn and lighthouses;
- the Tyndall colour series (attached) and a clear designation that the sky blue should be called Tyndall Blue;
- the scattering of light shown via comet's tails, milk and clouds;
- particulate matter (germs) shown up by his strong beams;
- a greenhouse and representations of the atmospheric layers and the importance of water vapor in the sky and in heat;
- the respirator;
- bacteria and Tyndall's proof and his collaboration in establishing the germ theory with Pasteur, Huxley and Lister, leading to both sterile medical facilities and clean room manufacture of chips;
- photochemistry, optoacoustic techniques and light-beam technologies;
- science and engineering education and his massive contribution in providing textbooks for the first ever school physics programmes;

Outlined by Dr Norman McMillan C.Eng, FEI, C.Phys, F.Inst.P, FRSA, M.SPIE (CEO, ANT Ltd), Martin Nevin and Randal Dempsey

3. Aims of the Commission

Carlow County Council Public Arts Working Group will lead this Commission through the Arts Office of Carlow County Council. The Public Art Working Group will work in consultation with a representative from the Leighlinbridge Improvement Group to deliver this project.

The Public Art Working Group would ask the Artist to consider the following aims in submitting their application :

- The **permanent** artistic feature will sensitively represent the pioneering work of John Tyndall in the designated location of his birthplace Leighlinbridge County Carlow and be sited in close proximity to or in the Garden of Remembrance.
- The artist may choose to represent John Tyndall himself, conceptually respond to the work of Tyndall as outlined in the background information and local research in sections 1 and 2 of this Brief or respond to represent both concepts.
- Artists are asked to consider the visitor experience to Leighlinbridge when visiting this artwork in particular connecting the artwork to the reach of Tyndall's work and the impact it has had worldwide with the potential of an interaction display that connects to the artwork outlining his many achievements.
- Artists are asked to consider the context and historical tradition of the area as well as the local landscape and in particular the natural environment. The proposed artwork shall be designed and conceived such that it does not adversely affect the integrity of the site concerned and has no likely significant effect on the Special Area of Conservation. Consideration will be given to the due care and attention of the immediate surrounds and choices made in terms of scale/installation/landscaping/ground works/any other site requirements in this context. Also if water/light is a feature incorporated into the work consideration is to be given of the surrounding infrastructural requirements and conservation concerns.
- Work should be of a high artistic quality with consideration given to the durability of chosen materials and environmental considerations for the long-term maintenance of the work. The installation and construction of the artwork shall also be considered in the design process.

The principles of the Sustainable Development Goals shall be considered in the design, principally SDG 12, responsible consumption and production, in the consideration of materials selection.

- Artists should consider the key linkage of John Tyndall to the current climate crisis, consideration of this and the educational awareness Tyndall introduced to the world should be made.

PLEASE NOTE The proposed development will have to comply with any relevant statutory planning requirements (e.g. planning permission/exemption certificate etc) as maybe applicable under the Planning and Development Act 2000 (as amended) and associated Planning and Development Regulations 2001 (as amended).

Also note that due to COVID 19 all health and safety requirements associated with the installation of the work or site visit will need to be complied with and it is the responsibility of the artist to do so.

Applications:

Applications are sought from highly experienced artists with a proven track record of public art commissions as outlined in Stage 1 below.

We ask that artists respond in your outlined proposal to the above Public Art Working Groups agreed **aims of the commission** when submitting their application and read this Brief carefully as all information is contained within this.

Please submit your application via email to PAWG@carlowcoco.ie All supporting materials attached must be clearly labelled and have the artists name at the top of each document. All links and supporting material provided must open and be accessible to the assessment panel – any material that is not will be deemed ineligible. Emails larger than 25mb will be rejected by our Firewall. If your email is going to be larger than 25mb please email us three days prior to closing. Electronic applications only.

Please note artists are asked not to enter into correspondence with Carlow County Council Arts Office prior to submitting your application. Once your application is received, artists will receive an acknowledgement email only from the Arts Office, it is the artists responsibility to ensure all attachments are sent and are accessible.

Selection Process

The Public Art Working Group will nominate the Selection Panel which will consist of representatives from the Public Art Working Group, an external assessment suitably qualified person and a nominated representative from the Leighlinbridge Improvement Group to assess the applications and select **both short listed and final commissioned artists.**

Stage 1:

Artists are invited to submit outline of proposal and outline costs by 12 Noon 4th March 2021.

No fee is paid to Stage 1 entrants.

Artists are requested to submit the following with their completed application form:

1. A typed proposal (max 200 words) outlining in detail your concept and final design. This should indicate your reasons for applying for the commission and how it meets the aims outlined above of the commission.
2. Details of materials to be used and timescale for the completion of the project with estimated budget in Euro.
3. Sufficient drawings, photographs, illustrations for the purpose of communicating the scale, proportion, and artistic content of the developed project. Please label all items.
4. Satisfactory evidence of safety, durability and maintenance requirements for the proposed work.
5. Detailed budget and timescale for the project and evidence of ability to complete the project within budget and time.
6. Current Curriculum Vitae
7. 3 examples/evidence of previous public art projects undertaken.
8. A Stamped Addressed envelope (to the value of the weight) to return all materials to artist(s).

Assessment of Stage 1 applications will take place within 3 weeks of the closing date above and all artists will be notified within this timeframe.

Unsuccessful applicants will be returned their application materials if a stamped addressed envelope was sent as outlined above.

Stage 2:

A number of artists **may be** short listed from **Stage 1** and will notified as above. Artists will be requested to develop Stage 1 proposals further and submit the following:

- Detailed design drawings, photo's, CD, video etc., (Maquette / models desired but not essential).
- Detailed explanation of proposal with timeframe and completion date.
- Detailed breakdown of commission budget.
- Evidence of Public Liability Insurance / Health and Safety etc

Stage 2 artists will receive **€500** towards the cost of developing proposals. A site meeting with the Engineer will be arranged prior to submission of final proposals (artists attending the site visit do so at their own expense). This will be done so in accordance with COVID19 Health and Safety Guidance.

Upon receipt of detailed proposals artists may be required to meet virtually with and present proposal to selection panel.

6. Selection Criteria

The Selection Panel will assess the proposals under the following headings:

- Proposal meets the outlined aims of the commission
- Evidence that the project proposal can deliver on time and within budget
- Artists track record and artistic quality/evidence of previous artistic work
- Artistic quality of idea presented for this commission
- Evidence of deliverability of schedule of works and installation

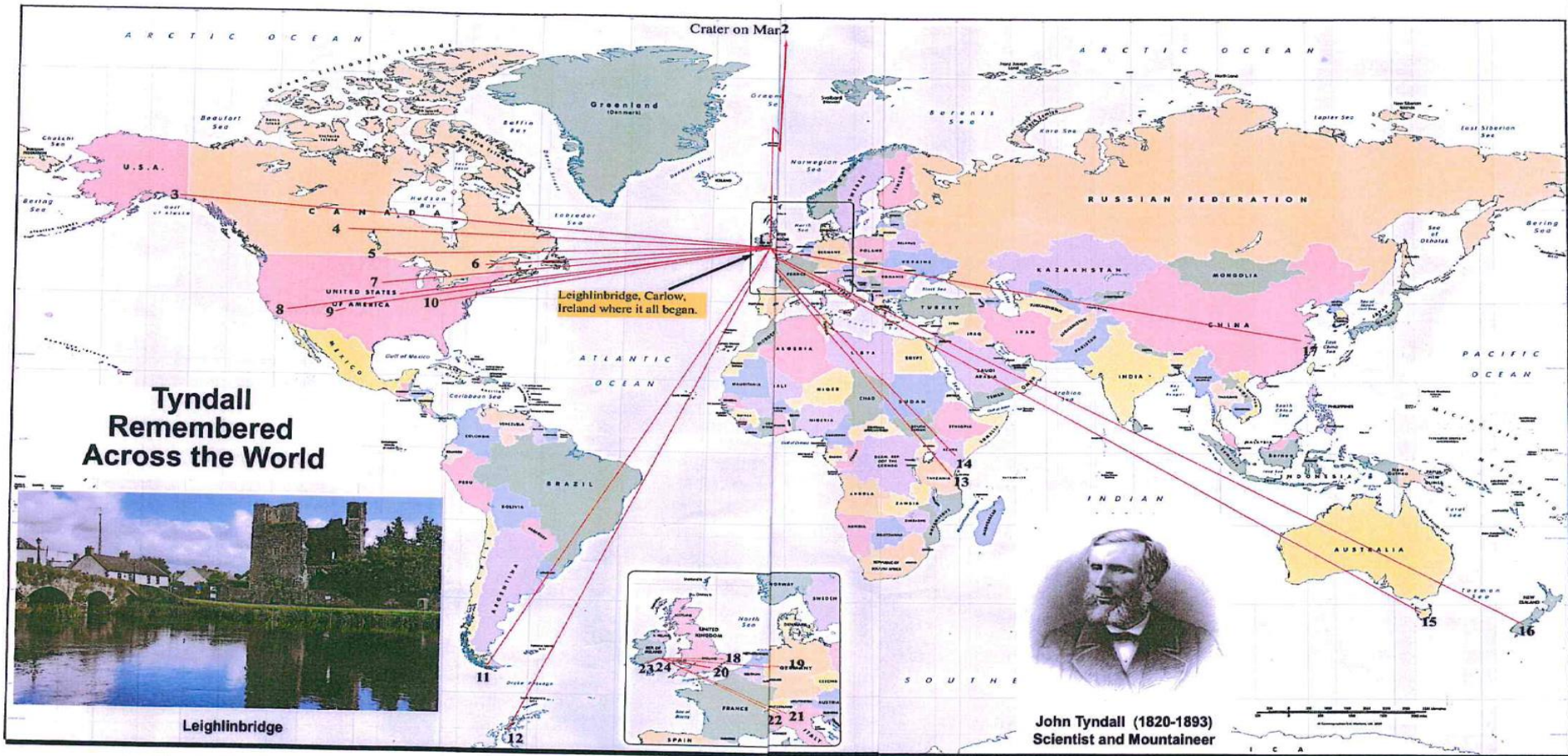
APPENDIX 1

Tyndall Remembered Across the World.

Maps are for **Illustration purposes only** to show the extent of Tyndall's work worldwide.

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Map developed by Randal Dempsey, Martin Nevin and Dr Noman McMilla



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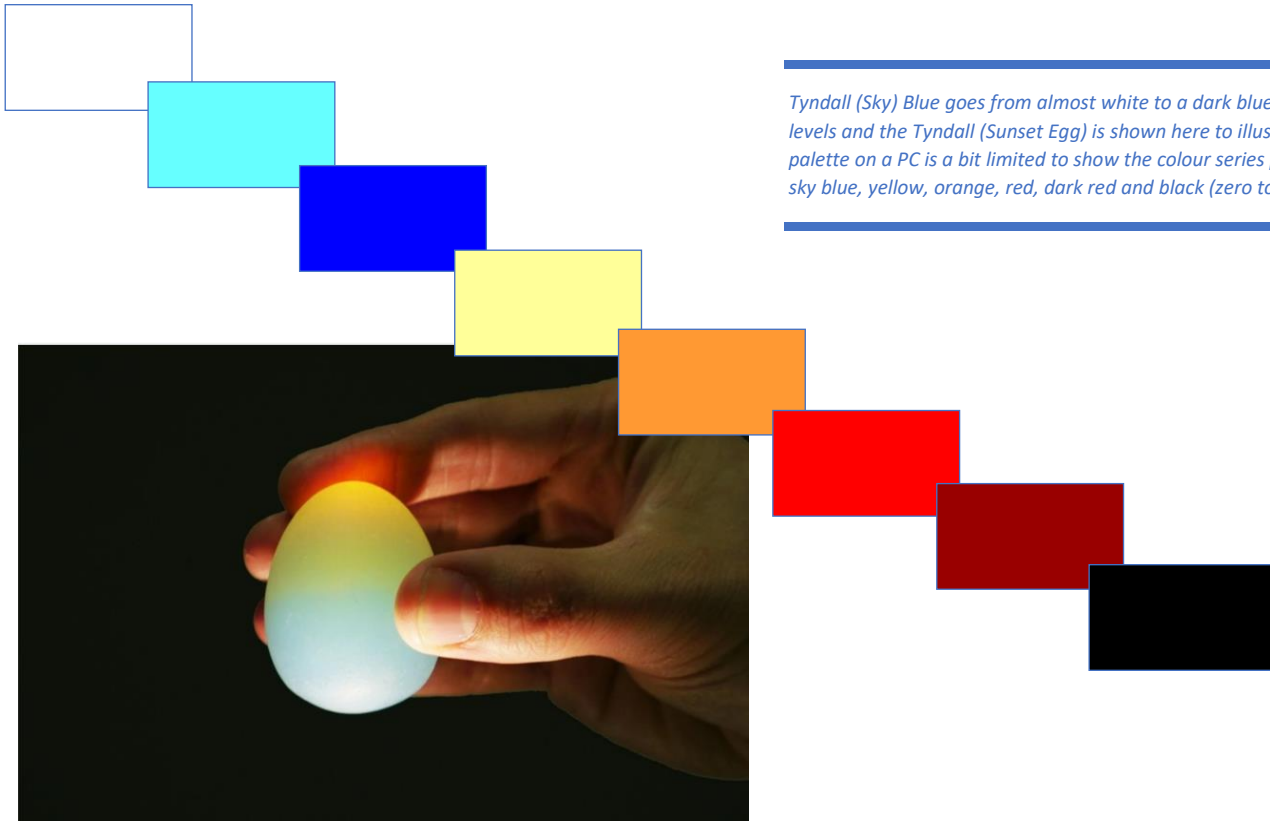
- 1 Leighlinbridge, Carlow, Ireland, birthplace of John Tyndall
- 2 Tyndall Crater on Mars - bears his name since 1973
- 3 Tyndall Glacier, Elias, Manitoba, Alaska.
- 4 Tyndall stone, sourced from an area near the town of Tyndall, Manitoba was used in the construction of Saskatchewan University
- 5 Tyndall Town Manitoba, Canada.
- 6 Tyndall stone lines the walls of Government Buildings, Ottawa, Canada
- 7 Tyndall Town, South Dakota, U.S.A.
- 8 Mount Tyndall - 10th highest peak in the Sierra, Nevada.

- 9 Tyndall Glacier and Creek, Rocky Mountains, Colorado, U.S.A.
- 10 Tyndall Town, Ohio, U.S.A.
- 11 River Tyndall, Tyndall Glacier and Tyndall Lake, located in Patagonia, Southern Chile.
- 12 Tyndall Mountain, Graham Land, Antarctica
- 13 Tyndall Mountain, Tanzania, Eastern Africa
- 14 Tyndall Glacier, Mount Kenya, Kenya, Eastern Africa.
- 15 Tyndall Range, generally known as the *Tyndalls*. Tasmania.
- 16 Tyndall Glacier, Otago, South Island, New Zealand.

- 17 Tyndall Centre for Climate Change, Fudan University, Shanghai, China.
- 18 Tyndall Centres for Climate Change, U.K. University of Manchester, University of Newcastle and University of Norwich.
- 19 Tyndall studied for his Ph.D in Marburg University, Germany.
- 20 Tyndall Home in Hindhead, Surrey, U.K.
- 21 Pic Tyndall, Matterhorn, Aosta Valley, Switzerland
- 22 Tyndall Mouument and House, Bel Alp, Valais, Switzerland.
- 23 Tyndall Centre for Climate Change, Cork, Ireland
- 24 Tyndall College Carlow, Ireland.

APPENDIX 2

Tyndall Colour Series



Tyndall (Sky) Blue goes from almost white to a dark blue. The sunset (Tyndall scattering) colours as more intense the lower the light levels and the Tyndall (Sunset Egg) is shown here to illustrate the actual colours produced by the Tyndall scattering effect. The colour palette on a PC is a bit limited to show the colour series properly but there are perhaps 8 colours with varying density of hues. White, sky blue, yellow, orange, red, dark red and black (zero total scattering and no light or colour). Flowers can represent this well.

This is a scattering egg showing the effects of colour produced by this scattering of light. Let us say the traditional colors in English include: [red](#), [orange](#), [yellow](#), [green](#), [blue](#), and [violet](#). (Let us say $W = R + Y + O + G + B + V$) The absence of light is Black=B.

There are not 7 which is a myth created by Newton who said his assistant had more acute vision than him and saw 7 "refractively dispersed" colors by his prism. Indigo is not a spectral colour is a colour by diffraction effect that Tyndall studied in fact. These diffraction effects in rainbows are called supernumeraries.

This is the negative Tyndall Series Sky Blue = $W-R$; $W-(R+Y)$; $W-(R+Y+O)$; $W-(R+Y+O+G)$; $W-(R+Y+O+G+B)$; $W - (R+Y+O+G+B+V) = \text{Black}$.
Clouds viewed from below are Black.

The positive series is Black; R; R+Y; R+Y+O; R+Y+O+G; R+Y+O+G+B; R+Y+O+G+B+V =W. Clouds are white above because of scattering and milk is white because of total scattering. Let me say Black, brown, dark red..down to white.

You see all these colours in sunsets and clouds. Tyndall invented the Cloud Chamber to study these effects and show practically these effects.

Outlined by Dr Norman McMillan C.Eng, FEI, C.Phys, F.Inst.P, FRSA, M.SPIE (CEO, ANT Ltd)