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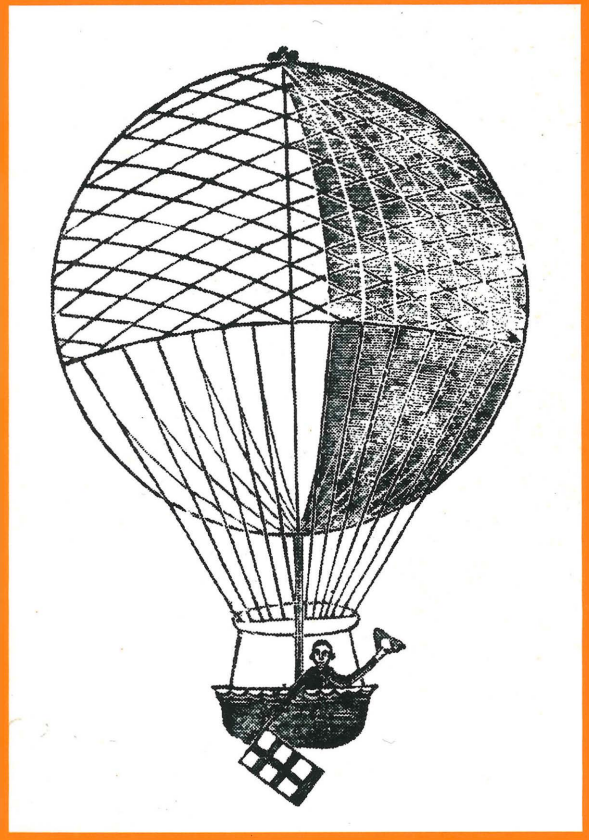
UP, UP AND AWAY!

An account of ballooning in and around Bristol and Bath 1784 to 1999



JOHN PENNY

THE BRISTOL BRANCH OF THE HISTORICAL ASSOCIATION
LOCAL HISTORY PAMPHLETS

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Up, Up and Away! is the ninety-seventh pamphlet in this series. The author, John Penny, has previously contributed a trilogy of pamphlets: no. 85, *Luftwaffe Operations over Bristol 1940/44*, no. 90 *The Air Defence of the Bristol Area 1937-44* and no. 95, *Bristol's Civil Defence during World War Two*. All are still available as shown on the inside back cover.

The publication of a pamphlet by the Bristol Branch of the Historical Association does not necessarily imply the Branch's approval of the opinions expressed in it.

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Cover Illustration: A typical late eighteenth century wood-cut of a balloon ascent. This example shows James Sadler at Manchester 19/5/1785. *(Author's Collection)*

UP, UP AND AWAY!
An account of ballooning in and around Bristol and Bath 1784 to 1999

As home to Cameron's, the world's largest and best known balloon manufacturers and venue for a renowned international balloon fiesta, Bristol can justifiably be titled the 'Balloon Capital of the World'. Although the sight of multi-coloured hot air balloons drifting serenely over the roof tops is today a common spectacle for Bristolians, many would be surprised to learn that it was as long ago as 1785 that the first manned ascent took place from the city. The following account is an attempt to chart the history of the balloon in the Bristol and Bath area over its first 215 years and to place the local scene in a national and international historical context.

The Pioneers

Early on the afternoon of November 21st 1783 Jean-François Pilâtre de Rozier, a Professor of Natural Philosophy, and François Laurent, Marquis d'Arlandes, a Major in the Garde Royale, lifted off from the Château La Muette in the Bois de Boulogne for a 25 minute flight over Paris. This ascent in a Montgolfière balloon filled with hot air supplied by an open brazier opened a new chapter in the history of man, the two courageous adventurers becoming the first human beings to leave the earth's surface. Public imagination was fired and man's initial aerial voyage heralded the start of a period of intense enthusiasm for anything concerned with balloons and ballooning. Technology was at this time moving surprisingly quickly, for within only ten days Parisians witnessed Jacques Charles and Ainé Robert successfully demonstrate a full size balloon filled with hydrogen, a much more effective lifting agent than the hot air employed by the Montgolfiers. The outstanding performance of envelopes inflated with hydrogen, and later with coal gas, therefore ensured that no serious work on hot air balloons was carried out for 170 years and that almost all the man-carrying aerostats constructed during the late 18th and early 19th century employed hydrogen as their lifting agent.

Due to a certain amount of professional jealousy on the part of British scientists and the apathetic attitude of the Royal Society, England at this time was lagging well behind the French in aeronautical developments and when at last demonstrations were carried out in this country it was Italians who lead the way, for they alone it seems had taken the trouble to acquaint themselves with details of the French discoveries during their travels across Europe. Probably the first flight of a small unmanned balloon in England took place on November 4th 1783 when Count Francesco Zambeccari, together with fellow Italian Michael Biaggini, an artificial flower maker, succeeded in launching a model balloon from Biaggini's roof in London's Cheapside. The first report of any ballooning activity in the Bristol area is contained in *Felix Farley's Bristol Journal* early in December 1783. 'The Air Balloons are so much the prevailing fashion that we are assured, two gentlemen of this city, of great ingenuity and well skilled in philosophy, are busily engaged in preparing a machine of that kind, which will shortly be exhibited for the amusement of the inhabitants of this city'. Just who these men were we may never know, as local newspapers provide no further mention of them, but small experimental balloons were soon to be demonstrated in the West. At Bristol, Michael Biaggini exhibited an inflated 30 ft. circumference balloon at the Coopers' Hall in King Street for three days commencing January 4th 1784 and although never flown the display attracted much public interest.

Nevertheless, the first local outdoor demonstration of a balloon was performed a few days later at Bath, where the noted local physician Caleb Hillier Parry MD FRS (1755-1822) released a small 72 cu. ft. hydrogen-filled aerostat from the Crescent Gardens at midday on January 10th. A successful 19 mile flight was made before it came to earth just west of Wells, where it was discovered by one Thomas Urch who subsequently inflated the envelope with a pair of bellows, 'and exhibited it in that state to the populace of Wells and Shepton Mallet at 2d each'. By a strange coincidence another gentleman also released his demonstration balloon from Bath on January 10th, but unlike Parry he had no local connections, and was in fact a native of Tinwald, near Dumfries in Scotland, who had recently been residing in Ireland. As an itinerant lecturer in experimental philosophy, James Dinwiddie LLD (1746-1815) had already launched an air balloon from the Bowling Green Tavern, near London's Buckingham Gate, on December 18th 1783, and this demonstration was to be the first performance of his tour of Southern England. Dinwiddie's small craft was next exhibited for over a week at the Old Rooms, Bath, before it was launched from Mrs Scarce's Riding School at 1.53 pm on January 10th, the subsequent flight taking it some 10 miles before it descended on high ground in the parish of St George, near Bristol, a location still known as Air Balloon Hill.

Caleb Hiller Parry MD FRS (1755-1822) the man who launched the first balloon in the area, Bath, 10/1/1784 (Bath Reference Library)

In order to satisfy those citizens of Bath who for one reason or another had failed to attend either launching, Dinwiddie performed a second demonstration at the Riding School at about 1 pm on January 20th and its subsequent arrival caused quite a stir in rural Dorset as this letter from Shaftesbury describes: 'Tuesday afternoon last, about four o'clock, an air balloon ticketed from Bath, fell in a field in the parish of Farrington, near Sturminster Newton in this county, to the no small consternation of the neighbouring villages, which it passed over at a height of about 40 yards. It fell in a field among a parcel of cows who gathered round it hideous bellowing. The farmer and his men agreed to attack it; seeing it bounding on the ground, they concluded it to be some monster come to carry off the cattle; one of his men, more courageous than the rest, went to it, and secured it by tying it to the railings of a rick. The curiosity of the country for six or eight miles round was never more raised than to see the air balloon'. Dinwiddie's next stop was Bristol where on January 24th at 1.18 pm he launched a 15 ft. circumference air balloon from the Backfields, near Stokes Croft, 'amid a vast concourse of people'. On this occasion a flight of some 20 miles was achieved before the aerostat was taken into military custody by Lieutenant Ogle of the 61st Regiment of Foot who was on a recruiting drive at Hilperton, near Trowbridge, where it descended at two o'clock in the afternoon. At that time a cluster of cottages then being built in Wilder Street, on the edge of Backfields, was christened 'Balloon Court', and although they survived until fairly recent times the buildings have now been demolished to make way for the modern office blocks known as Wilder House and Kenham House.

This demonstration was only the fourth in a quite remarkable series that was to follow, for Dinwiddie's tour continued with balloons being launched during the next three months from a number of towns and cities in the South and West including Exeter, Plymouth, Salisbury, Winchester, Southampton, Portsmouth and Chichester. Although the ascent of these tiny unmanned aerostats created a great deal of public interest, later in the year one event overshadowed everything which had gone before. That occurred in London on September 15th 1784 when Vincenzo Lunardi, secretary to the Neapolitan Ambassador to Britain, lifted off from the grounds of Honourable Artillery Company to become England's first aerial traveller. Over night the young Italian became a popular hero, with the ballooning craze in this country reaching its peak soon after.

Another foreigner to seek fame and fortune in England was Jean-Pierre Blanchard, the climax of whose career came on January 17th 1785 when, in company with Dr John Jeffries his American sponsor, he accomplished the first aerial crossing of the Channel from England to France. During the

AIR BALLOON.

On MONDAY, TUESDAY, and WEDNESDAY next, and no longer,

Will be Exhibited,

At the COOPERS-HALL, King-ſtreet,

AN AIR BALLOON Floating, Thirty Feet in Circumference, under the Direction of Mr. BIAGGINI, who let off the Balloon from the Artillery Ground, and has now one Exhibiting at the Pantheon, London.

The Price of Admiſſion 2s. 6d. each Perſon.

Such Ladies and Gentlemen who would chuſe to be preſent to ſee the Method and Proceſs of filling the Balloon with Inflammable Air, by applying to Mr. Biaggini, at the White Lion, Broad Street, any Time this Day, will be provided with a Particular Ticket for ſeeing the Whole Operation:—Extra Price 2s. 6d. each.

N. B. The Room will be kept warm during the Whole Exhibition.

Briſtol, Saturday, Jan. 3, 1784.

Advertisement for Michael Biaggini's balloon demonstration at the Coopers' Hall, Bristol, early January 1784 (Bonner & Middleton's Bristol Journal 3/1/1784)

BATH, MARCH 10, 1785.

The Incomparable Grand and Majeſtic GOLD and SILVER

AIR BALLOON.

THE Proprietor begs leave moſt reſpectfully to inform the Public in general, that at a conſiderable expence he has completed a BALLOON 25 feet in diameter, and 75 in circumference, compoſed of entire new, peculiar, and ſtriking materials, gilt all over, and richly ornamented; and notwithſtanding the extraordinary large dimenſions of this Balloon, it is exempt from gores or ſeams; it is encompaſſed by a netting formed upon mathematical principles, terminating by a circle for the ſuſpenſion of the Majeſtic Car, in which the Proprietor intends in a ſhort time to aſcend into the Atmoſphere at Briſtol, of which timely notice will be given in the Bath and Briſtol papers.

But that the public may be gratified with an early ſight of this improved, and truly magnificent Aerial Vehicle; which by far excels every thing of the kind yet made, it is now exhibiting in Mr. GYDE's Aſſembly-Room, every day from nine o'clock in the morning till five in the afternoon, for a few days prior to its going to Briſtol.——Admittance One Shilling.

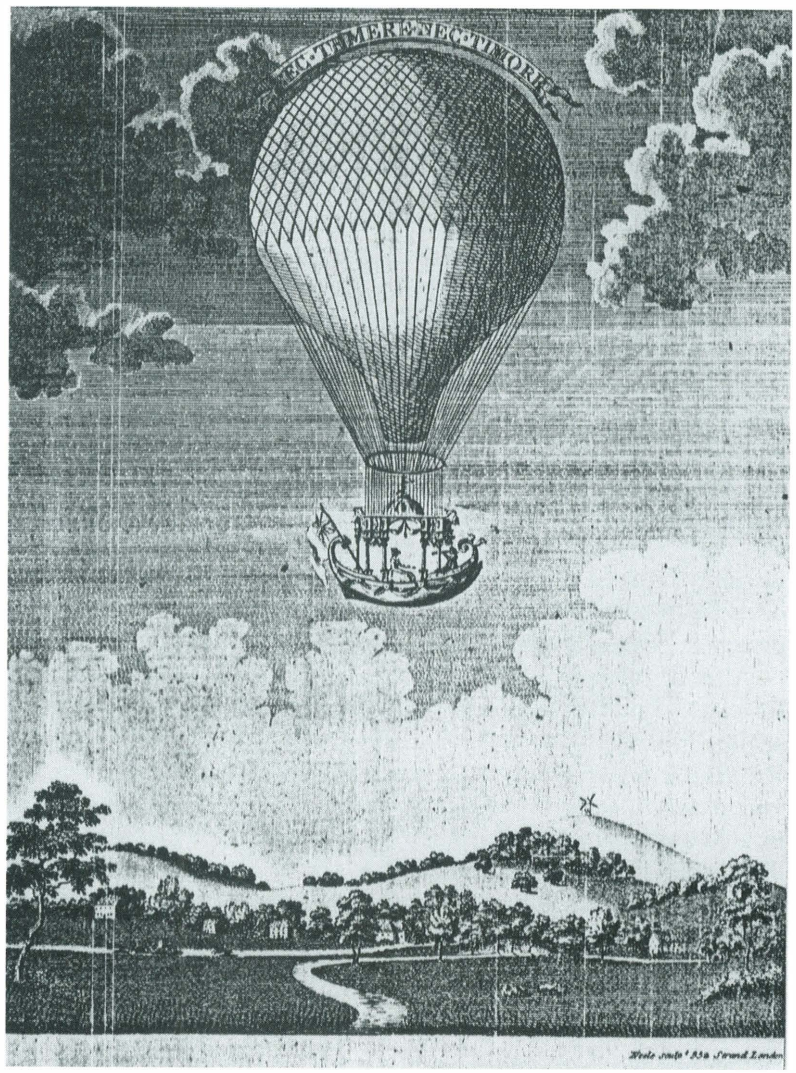
☞ Subſcription-Tickets to ſee it aſcend are to be had at the Rooms, Pratt and Marſhall's Library, and at Mr. Cruttwell's, printer, at 10s. 6d. and 5s. each; and no money to be touched by the Proprietor till after his aſcenſion; upon failure of which, each Subſcriber will have his money returned. [5704]

Joseph Deeker's advertisement for the exhibition of his man-carrying balloon at Bath prior to ascending from Bristol (Bath Chronicle 10/3/1785)

preparations for this flight the little Frenchman had received help with the inflation from an 'ingenious mechanic' named James Deeker who sold small experimental balloons from his premises in Berwick Street, Soho, London. Deeker went on to make a number of balloon ascents of his own, and soon after, another member of the same family, one Joseph Deeker, sometimes spelt Dicker or Decker, was ready to make his first ascent, and for the venue chose Bristol. The journey down from London was broken at Bath where on March 10th 1785 the 25 ft. diameter balloon advertised as 'The incomparable Grand and Majestic Gold and Silver Air Balloon' was exhibited at Mr Gyde's Assembly Room, complete with its very ornate car containing not only a seat for the pilot, but also oars with which it was hoped to steer the balloon.

Building and launching a man carrying aerostat was always an expensive undertaking and Deeker estimated his costs at 200 guineas which, as was common in the late 18th century, was raised through sponsorship, direct public subscription, advanced ticket sales and from a pre-flight exhibition, which in the case of Deeker's balloon was held at the Coopers' Hall in Bristol's King Street. When at last the necessary money had been raised the balloon was moved to a field adjoining the house of John Rawlings, a surgeon, of Little Avon Street, St Philip's, from where it was to be launched on April 18th 1785. In the city vast crowds gathered in anticipation, but it was three in the afternoon before even a small pilot balloon was released to test the wind, and this was later reported to have come down near the Cross Hands public house at Old Sodbury. The 18 year old youth, sometimes described as Deeker junior, finally stepped into the basket at 3.45 pm, and after some near disasters which threatened to pitch him out into the field, the balloon finally rose into the sky and was out of sight within 15 minutes. So strong was the wind that it took only 32 minutes to cover the 26 miles, the balloon eventually making a very rough landing 2½ miles east of Chippenham, where Joseph Deeker, luckily none the worse for his experience, was escorted into the town, 'amidst the acclamation of the assembled crowd'. No more is heard of Joseph Deeker's ballooning exploits in England, but on August 7th 1789 he launched a 24 ft. diameter balloon from Fort George on New York's Manhattan Island, the first serious demonstration that city had witnessed.

As a result of the flush of enthusiasm for ballooning that had spread across Europe in 1784 and early 1785 a number of manned ascents had been made and all of these, save for some bruises on landing, had been undertaken safely. However, in June 1785 this false illusion was spectacularly shattered with the death at Boulogne of Pilâtre de Rozier, the world's first aeronaut, at the start of a flight across the English



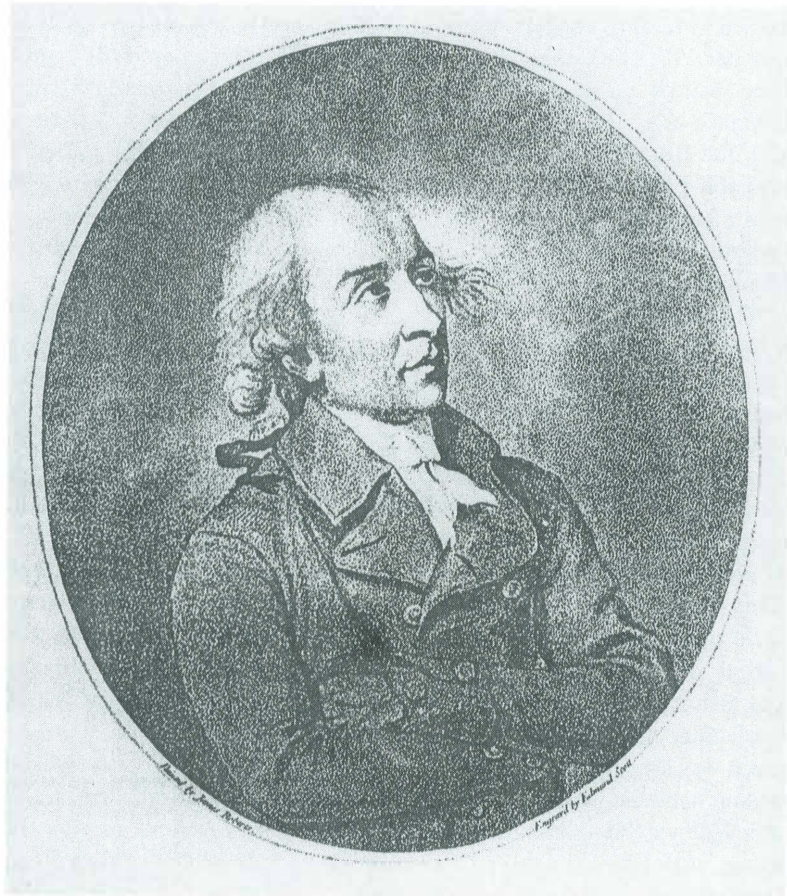
No illustration has come to light showing Joseph Deeker's ascent from Bristol, but it is probable that the balloon used by James Deeker at Norwich 1/6/1785 was somewhat similar (Author's Collection)

Channel. For this de Rozier had chosen to use a combination balloon inflated with hydrogen which was heated from below by hot air to render the craft self-regulating in altitude. Although the theory was sound and 'Rozier' balloons, as they have since become christened, are now employed by intercontinental balloonists, albeit with helium used in place of hydrogen, the explosive combination of that particularly inflammable gas and naked flame was the reason for de Rozier's spectacular demise. This event, followed by Ralph Heron falling to his death from Lunardi's balloon during a premature take-off from Newcastle upon Tyne in August 1786, brought the ballooning craze to an abrupt end, while the French Revolution and the subsequent wars in Europe ensured that no balloons were demonstrated locally until early in the next century.

The first of these conflicts, the French Revolutionary War, ended with the short lived and uneasy Peace of Amiens signed by Britain and France on March 28th 1802 and during the 13 month period before the Napoleonic War proper started it was possible for life to return to normal. This enabled André Jacques Garnerin (1769-1825), one of France's greatest aeronauts, to visit Britain and undertake a number of demonstration flights. The young Garnerin had made his first ascent from Metz in 1787 whilst a soldier in the French Army and although subsequently made a prisoner of war passed his incarceration perfecting a design for a parachute which was successfully demonstrated in Paris on October 22nd 1797 when he made the world's first parachute descent from a balloon.

After arriving in England he carried out his first ascent from the Ranelagh Gardens, in London, in June, followed the next month by another from Lord's Cricket Ground and on August 3rd by a flight from Vauxhall in the company of Duncan Glassford. The provinces were also visited and in early September advertisements began appearing in the local newspapers which stated that on August 7th he would ascend from the Sydney Gardens, Bath, in the company of his wife Jeanne and the enthusiastic Mr Glassford. Although the weather was fine and the inflation process normal, when, at 5.40 pm, the balloon finally took off it was only with Garnerin and Glassford aboard. The subsequent flight, however, went well and lasted until twenty past seven when the balloon landed gently in a field near Mells Park, some 12 miles from Bath. Within two weeks of this ascent, Garnerin's thirteenth, he was back in London where, as the culmination of his ballooning tour, on September 21st 1802, he made the first successful parachute descent in England.

The resumption of hostilities with France on May 18th 1803 again ensured that it was to be a number of years before another balloon was seen locally and it was to be 1810, by which time any threat of a French invasion had passed, that the climate was right for its return. This time



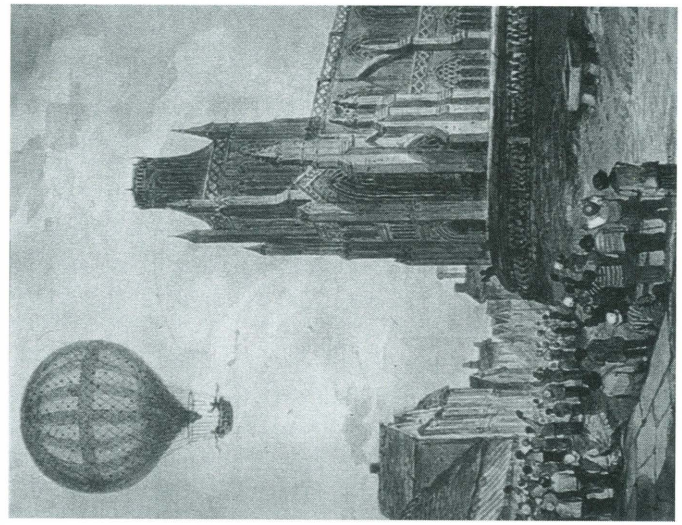
James Sadler (1751-1828) the first English aeronaut. An engraving by Edmund Scott from a painting by James Roberts, published 2/5/1785 (Author's Collection)

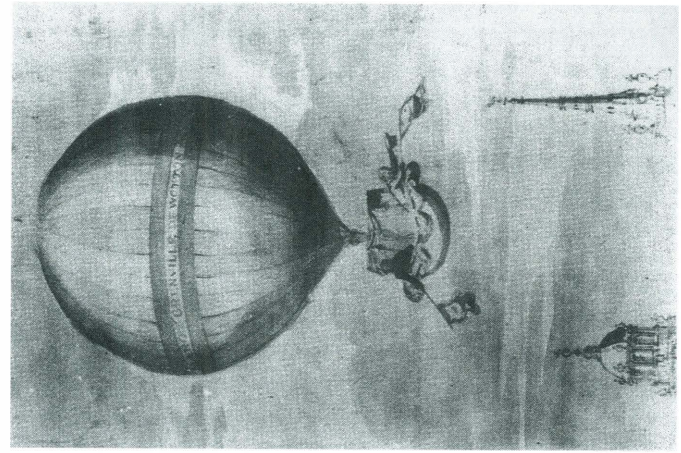
the venue was to be Bristol and the aeronaut none other than the 'Father of English Ballooning', James Sadler (1751-1828), who as a result of making an ascent from Oxford on October 4th 1784 had become the first Englishman to be taken aloft in a balloon. During the next year he is known to have made a total of eight ascents, one of the last of which, on October 19th 1785, was from Stroud. Shortly after he temporarily retired from ballooning to undertake development work on steam engines, ordnance and guns before, in 1796, taking an appointment as a chemist with the Board of Naval Works. However, with the threat of a French invasion passed, on July 7th 1810 he restarted his aeronautical career with a balloon flight from Oxford in the company of his son Windham, undertaken on the occasion of the installation of Lord Grenville as Chancellor of the University.

This was followed on September 24th by an ascent, his sixteenth, from a field behind Stokes Croft, in Bristol, in which local chemist William Clayfield was carried as a passenger. It had also been intended to take Sadler's daughter along on the aerial voyage, but as the fresh north-north-easterly wind blowing that day indicated that they would probably be taken out over the Bristol Channel it was thought prudent to leave her behind. The balloon itself was said to be 'altogether the most magnificent ever exhibited in this country' and 'was the same in which Mr Sadler ascended at Oxford'. Its envelope was about 30 yards in circumference and made of silk with gores coloured green and light purple around the middle of which was a circle upon which 'Right Hon. Wm Windham Greville, Baro de Wotto, Cancel. Univers. Oxon' was written in gold. The intrepid aeronauts finally took off at around 1.20 pm on what was to be an eventful flight lasting nearly three hours, the balloon initially flying towards 'Leigh Down' above which was dropped by parachute a small basket containing a cat, the animal landing none the worse for its experience near Warren House. Here it was retrieved by a lime-burner and subsequently passed into the hands of a local doctor who appropriately christened the creature 'Balloon'. Sadler and Clayfield then passed over Clevedon before crossing the Bristol Channel to the vicinity of Barry where, after releasing some of the ballast, the balloon rose rapidly before changing direction and drifting down mid-channel to a rough landing on the sea about four miles off Combe Martin, from where about an hour later both men were rescued by a Lynmouth boat.

The Age of the Showmen

Because of the high cost involved, during the first two decades of the nineteenth century it seemed that ballooning would never be anything more than a rare demonstration for any community, for although the generation of the necessary hydrogen gas had progressively become





(Left) James Sadler and William Clayfield over the spires of Christ Church and All Saints during their ascent from Bristol 24/9/1810. Watercolour by William Edkins, who also painted the banner held by Sadler (Bristol City Museum & Art Gallery). (Right) Sadler and Clayfield pass close to St. Mary Redcliffe (Bibliothèque Nationale, Paris)

safer and more reliable it was still very costly and dangerously slow, particularly for any aeronaut unfortunate enough to be surrounded by a restless and increasingly hostile crowd. This situation, however, changed dramatically during the early 1820s when, following the proliferation of companies supplying coal-gas for lighting purposes, it was found that this mixture of hydrogen, methane and carbon monoxide could also be used to inflate balloons. 1810 saw the first such undertaking incorporated in London and in 1816, after a struggle to raise the necessary capital, the Bristol Gas Light Company began operations, followed in 1818 by the Bath Gas Light & Coke Company. Although the quality of the gas produced at that time was variable and seven to eight times heavier than pure hydrogen, the speed and ease with which a balloon could now be inflated, by merely connecting it to a gas main, was an advantage which far outweighed the loss of lifting power.

The man who pioneered the use of coal-gas in balloons was Charles Green (1785-1870), an archetypal John Bull character who was certainly the greatest English aeronaut and one of the most skilful and successful balloon pilots the world has ever seen. His maiden ascent, and the first ever made using coal-gas, was from London's Green Park on July 19th 1821, in celebration of the coronation of George IV, after which he claimed the new gas had a number of advantages over hydrogen, one of the most important being the cost, Green estimating that he could inflate a balloon six times with coal-gas for the cost of one filling with hydrogen. With the arrival of a readily available and cheap gas supply, ballooning proliferated and for the next 60 years or so no fête or celebration was complete without a balloon ascent, while they became a regular spectacle at pleasure grounds throughout Europe where risky aerial feats were regularly carried out involving parachute descents, night ascents, often accompanied by the discharge of fireworks, as well as ascents on horseback or with other animals.

Locally, the availability of coal-gas was responsible for the first balloon demonstrations in the area since Sadler and Clayfield's flight back in 1810. The man who chose to make them was George Graham, famous as one of the most accident prone of the well-known aeronauts but whose misadventures, and later those of his wife Margaret, may often have been due to an over-optimistic faith in the theoretical lifting power of what was probably poor quality coal-gas. George Graham got away to an unpromising start as his first attempt to ascend from a tavern at Pentonville in August 1823 was a fiasco, the envelope of his balloon being so permeable that it refused to leave the ground forcing him to cut it loose, but not quickly enough to prevent the disgruntled crowd of spectators from rioting. His second effort from the same place on September 5th fared little

better, the envelope ripping on take-off causing the badly leaking balloon to lift Graham to an altitude of only 400 feet before depositing him unceremoniously in a gravel pit half a mile away. With repairs carried out, Graham left the capital and on October 3rd attempted to ascend from Cheltenham accompanied by a Mr Webbe of Regent Street, London, but his bad luck continued and again due to a lack of lift he was forced to abandon the attempt. Nevertheless, after reluctantly leaving Webbe behind he was at last able to make a successful flight which ended some 55 miles away in the vicinity of Oxford.

Graham's next venue was the Sydney Gardens at Bath where it was advertised that he would make an ascent at 2 pm on October 16th. Once again, however, problems arose and even though the inflation process continued throughout the afternoon, when Graham and his passenger, Robert Jillard of Oakhill, Somerset, took their places in the basket it not surprisingly failed to gain altitude. For the second time Graham was forced to continue alone although on this occasion the crowd had to settle for a static ascent with the balloon tethered above the gardens at the end of its 70 foot grappling rope. The problem, it appears, was caused by the fact that gas supply was insufficient, the tap used being some two miles away from the gas works, while opposite Pulteney Street the pipe itself was partly filled with dirt! In order not to disappoint the spectators Graham promised to try again the following day and in order to ensure that the envelope was fully filled inflation continued throughout the night and the following morning. The work having been completed, by 1 pm all was ready for Graham and his potential passenger, on this occasion the previously disappointed Mr Webbe, to climb aboard. It had, however, been a very wet morning and after successfully rising to an altitude of more than a mile they entered 'heavy damp cloud which caused the gas to condense' after which the balloon made a rapid descent, followed by a rough landing near Bathampton House.

However, Graham was still not satisfied with his performance and soon announced his intention of again ascending from Bath, 'Principally in order to disprove the unjust imputations on his conduct to which the partial failure of his former ascent had given rise', while he also resolved 'not to receive any public remuneration for the present ascent' which, in order to prevent any problems with the inflation process, was to take place from the yard of the Bath Gas Light & Coke Company in the Upper Bristol Road. Once again the weather was unfavourable, with heavy showers of rain falling; nevertheless, at 2.35 pm George and Margaret Graham took off successfully at the start of a 31 minute flight which ended 59 miles away on Lord Bolinbroke's estate, between Swindon and Wootton Bassett.

In 1824 the Grahams returned to Bath, where during Race Week George proposed to ascend in his new silk balloon from the Sydney Gardens for the benefit of the Bath General Hospital. Surprisingly, all went well for this, his eighth ascent, and at 6.30 on the evening of July 16th, accompanied by Mr J. Adams, one of his assistants, he lifted off faultlessly at the start of a flight which took them to within five miles of Ramsbury in Wiltshire, having flown about 50 miles in an hour and a half. Spurred on by his success, Graham made another evening ascent from the Sydney Gardens on July 19th, on this occasion unaccompanied, and once again the winds took him into Wiltshire, the balloon finally coming to earth not far from the pond in front of Longleat House. Bristol was the next stop and in an advertisement in the local press Graham announced that he intended to make his 10th ascent from the courtyard of the Gas Works at St Philip's on July 29th at 4 pm. The inflation process for this, which was to be Graham's fifth ascent using the same balloon, commenced in the early afternoon and within three and a quarter hours some 24,000 cu. ft. of gas had been injected into the balloon which was then about 37½ feet in diameter and standing 60 feet high. Two pilot balloons were released after which, at 5.05 pm, Robert Saunders, a solicitor, and William Clayfield, the man who had flown on the last balloon flight from Bristol in 1810, joined Graham in the basket. Yet again, however, calculations as to the balloon's potential lifting power were overestimated, forcing Clayfield to vacate his seat, after which, at 5.17 pm, Graham eventually lifted off and after crossing the River Avon at Rownham and recrossing it at Pill, finally put down in a quarry on Itchington Common, some 11 miles north-east of Bristol. During the course of this flight the balloon reached an altitude of just over 2½ miles, and with a duration of 1 hour 45 minutes, this was the longest flight he had so far completed.

The following summer Bristol was again visited by George Graham who made his 29th ascent at 4.50 pm on July 25th from the Gas Works accompanied by Robert Jillard, who he had failed to take aloft at Bath two years before. This time Jillard was not to be disappointed, the pair undertaking a 40 mile flight which finally ended 1 hour 25 minutes later at Midsomer Norton. By now Graham was becoming a regular visitor to the area, returning to Bristol in 1826 to make two more ascents, both from the yard of the Saracen's Head at Temple Gate. The first, however, which took place at 5.15 pm on September 13th with two passengers, Mr Bayley, a pupil of Graham's, and Mr West, a Bristol clerk, ended quite dramatically when the balloon touched down on Sir Bethel Codrington's estate at Iron Acton. Here, the grapple failed to take hold and after West jumped out the balloon rose again and travelled a further four miles with Graham and Bayley still aboard before finally coming safely to earth! The second ascent, undertaken only by Graham and Bayley, commenced at about 4.35 pm on

the 18th, but on this occasion the balloon rose very slowly and after skimming the tops of houses in College Green was forced to make a premature descent some 300 yards from Mr Miles' mansion near Leigh Woods.

No balloons were demonstrated in the area for the next few years but on May 19th 1829 none other than the great Charles Green chose Bath's Sydney Gardens as the venue for one of his many ascents. Uncharacteristically, however, all did not go well for 'on gaining an altitude of 3-400 yards the gas escaped so rapidly thru a fissure in the silk that he was obliged to make a rapid descent'. Undaunted he made a second attempt on June 4th and although the balloon lifted off successfully at 5.30 pm and took Green the 30 or so miles to Alderhall Common, near Fordingbridge in Hampshire, in 40 minutes, the descent was rendered 'much hazardous owing to the twisting of the balloon in the process of inflation which obliged him to cut holes in the silk'. Worse was to follow, for on the grappling iron taking hold, the rope broke with the result that the luckless aeronaut was dragged across two fields and a turnpike road, 'by which he sustained considerable injury to his right knee and wrist and a serious fracture of the thumb'. Happily he was not out of action for too long as in July he travelled to Devizes to undertake his next ascent.

As during the course of 1829 no itinerant balloonist visited Bristol it was left to George Pocock (1774-1843), an ingenious local schoolmaster and the inventor of a carriage drawn by giant kites, to provide a public demonstration of ballooning in the yard of his school on St. Michael's Hill. From here a large hot air filled envelope was released on the evening of June 11th, the unmanned aerostat subsequently taking a south-easterly course and remaining in view at a great height for more than an hour. Pocock's interest in balloons continued for some time as he and his pupils released five more, three of 12 feet and two of 20 feet in circumference, 'from a point on the Leigh shore' as part of the opening ceremony for the Bristol Suspension Bridge held on the evening of August 27th 1836. 'The wind was favourable to the ascent, and after soaring over the foundation rock, a current of air from Nightingale Valley wafted them across the river, and they floated gracefully over Clifton and Durdham Downs'. By the 1830s ascents had become such regular events that space does not allow them to be listed individually and although the public's enthusiasm for the balloon was to last until the early 1890s by that time the day of the professional showman-aeronaut was almost done. The old pleasure gardens were losing money and a number were closing, while as a popular attraction the balloon had been played out, its place soon to be filled by new and novel forms of entertainment such as the cinema and in 1903, by the arrival of heavier-than-air flight.

The Golden Age of Ballooning - Science and Sport

Although public interest in the balloon as a form of entertainment was in decline at the end of the nineteenth century, it was to some extent offset by a growing interest in scientific and military ballooning and, in the first decade of the twentieth century, in sport ballooning which originated in France but soon spread to other European countries. Those wealthy men and women who took up ballooning for pleasure purposes were a special breed and many of them also embraced with equal enthusiasm the use of the internal combustion engine, both on the road and in the air. Military aviation arrived in Britain in 1878 when an experimental balloon section was started by the Royal Engineers at Woolwich. The driving force here was Captain James Lethbridge Brooke Templer (1846-1924), a Militia man and enthusiastic aeronaut who already owned his own balloon. He also had a great interest in meteorology and was responsible in 1881 for persuading the War Office to loan the Meteorological Society the 38,000 cu. ft. army balloon 'Saladin' to make measurements of temperature and snow in the air during a proposed ascent from Bath Gas Works. Accompanying Templer were to be Lieutenant James T. Agg-Gardner, who was also MP for Cheltenham, and Walter Powell, MP for Malmesbury, another enthusiastic balloonist who had recently made two ascents of his own from Bath Gas Works. The first on November 3rd took him across the Bristol Channel to Hereford, while during the second, on December 3rd, he had a narrow escape when a gust of wind on take-off caused the balloon to collide with an elm tree, ripping the envelope and forcing him to make an emergency landing near the Royal School.

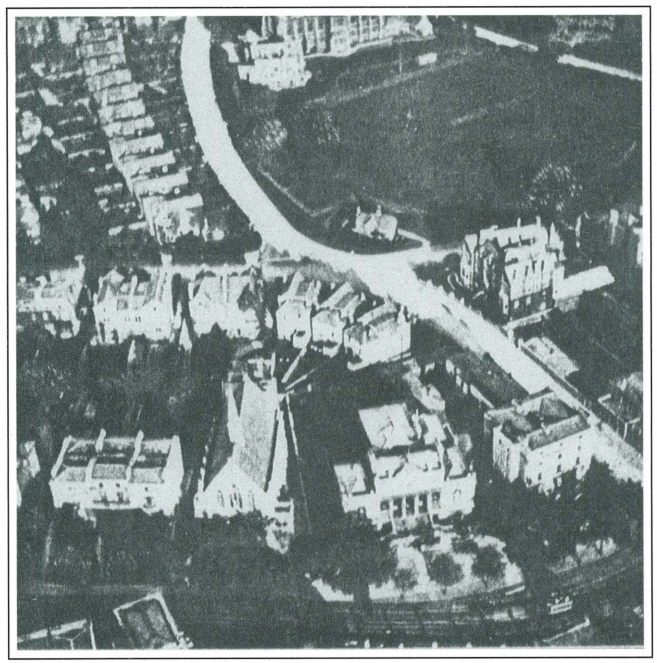
The ascent with the 'Saladin' went ahead on December 10th, the balloon lifting off successfully at 1.55 pm, after which the wind took it south-west across Somerset, past Exeter and on towards the village of Eype, near Bridport, close to Dorset coast where they arrived about 5 pm. By this time it was dusk and as the weather had deteriorated to such an extent that it was thought unwise to attempt to cross the Channel, they descended near the edge of a low cliff overlooking Bridport Bay. However, finding that the grapnel would not take hold, Templer, sensibly grasping the valve line, jumped out of the basket and shouted to his companions to follow him. Agg-Gardner obeyed, breaking his leg in the process, but Powell hesitated and in spite of Templer clinging desperately to the valve line until his flesh was cut to the bone it was wrenched from his grasp as the balloon was swept up and carried out over the Channel to the south-west. Although a hat was subsequently recovered from the sea off Swyre no other trace of Powell or the 'Saladin' was ever found.

Walter Powell and Captain James Lethbridge Templer in the basket of the balloon 'Saladin' shortly before the fatal flight from Bath 10/12/1881 (The Graphic, 24/9/1881)

Undoubtedly the foremost local aviation expert of this period and a respected world authority on the subject was Patrick Young Alexander (1867-1943), who having been lamed in an accident at sea at the age of 18 had turned to the study of aeronautics and aviation during his convalescence at his father's house in Bath. These subjects soon became his almost fanatical occupation and after inheriting some £60,000 in 1890, he was able to give generously of his time and ability in an endeavour to keep Britain in the van of aeronautical and scientific knowledge. He was one of the first private individuals locally to own a balloon, while in the small factory in the grounds of his home, De Montalt Wood, Summer Lane, Combe Down, he also oversaw the manufacture of numerous experimental devices connected with aviation.

Alexander's involvement with balloons started on June 9th 1891 when he made his first ascent with fellow aviation enthusiast Griffith Brewer at the Naval Exhibition at Chelsea in a balloon manufactured by Percival Spencer and piloted by Professor Auguste Gaudron. The four quickly struck up a close friendship that continued for many years and resulted in Alexander purchasing, from C.G. Spencer & Sons of Highbury, a three-man 35,000 cu. ft. balloon subsequently christened 'Queen of the West' and in which by the summer of 1892 he had carried out a number of ascents. The first of these seems to be that made with his friend Philip Braham on May 13th 1892, which saw the balloon take off shortly before 1 pm from Bath Gas Works on a 17 mile flight to Chew Stoke where they descended at twenty past two. Less than a month later, on June 28th, the two of them ascended again from Bath and during the course of this flight two photographs were taken before they finally landed at Marshfield. This was followed by a third ascent from Bath Gas Works on July 16th when Alexander took Griffith Brewer along on a flight which ended at Alveston, near Thornbury.

Activity now shifted to Bristol where in early September 1898, at a garden party at Clifton College held in honour of the meeting of the British Association in the city, the Rev. John Mackenzie Bacon FRAS (1849-1904), scientific lecturer and aeronaut, undertook a balloon ascent, the objectives of which were to investigate the effect of altitude on the audibility of sounds; to look for conspicuous stars before sundown and to note their altitude and angular distance from the sun; to investigate by photography the actine qualities of the atmosphere at different elevations; and to entrap air at high altitudes for subsequent analysis. To enable the flight to take place the Bristol Gas Company not only supplied the coal-gas free of charge, but also provided a special connection from their main in nearby Pembroke Road without payment, while the 40,000 cu. ft. buff and orange coloured balloon was brought

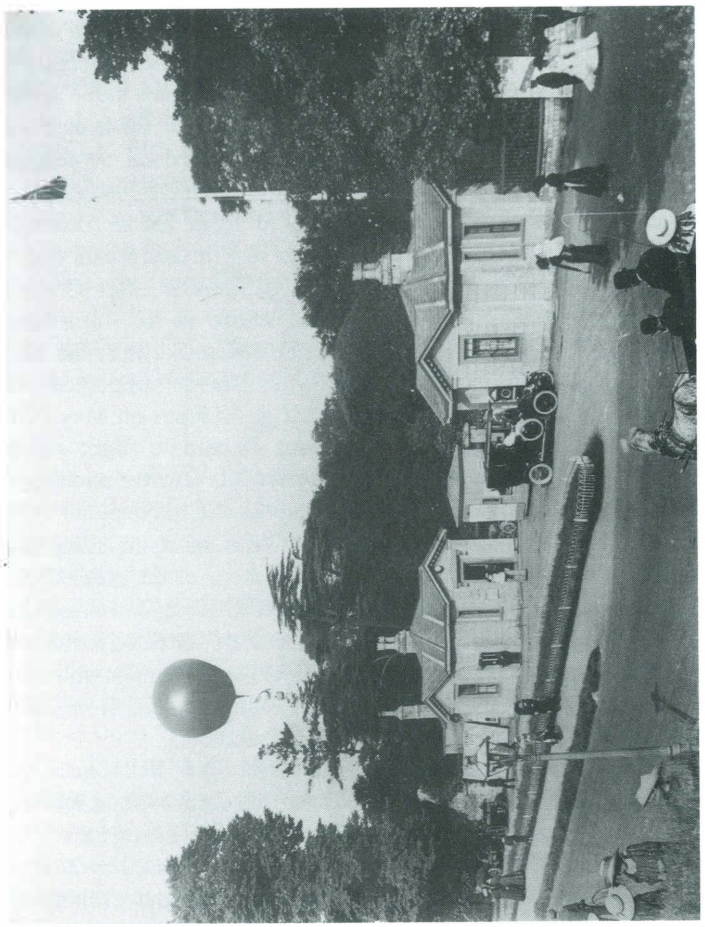


A photograph taken 1000 feet above Clifton College, Bristol, during the ascent from that place by the Rev. John M. Bacon 12/9/1898 (By Land & Sky by Rev. J.M. Bacon, London, 1900, page 88)

down from London by Percival Spencer. The Rev. Bacon, accompanied by his 'engineer', probably his daughter Gertrude, a noted balloonist and aerial photographer in her own right, eventually lifted off in perfect weather from the College Green at 5.10 pm on September 12th, and after a number of photographs had been taken and the experiments successfully carried out, the balloon made a soft landing in the vicinity of Frome.

As 1902 was the centenary of the first manned balloon ascent from Bath, Patrick Alexander decided to celebrate the event in style and invited many of the best known names in the aeronautical field to join him to witness a re-enactment. These included Major Baden-Powell and Eric Stuart Bruce, President and Secretary respectively of the Aeronautical Society of Great Britain; the Hon. Charles Rolls of the Aeronautical Club, probably more famous as the co-founder of Rolls-Royce; Major Frank Trollope, Vice President of the International Aeronautical Commission and Superintendent of the Army's Balloon Factory at Aldershot; Dr Barton and Mr O. Field, respectively Chairman and Secretary of the Aeronautical Institute & Club; Charles Groombridge, inventor of the Groombridge propeller; and Samuel Franklin Cody of Texas who was an expert in the management of large and powerful kites. The ascent itself took place from the Sydney Gardens at about 5.50 pm on September 8th, the 37,000 cu. ft. Spencer balloon 'Alexander', piloted by Patrick's old friend Professor Gaudron with Charles Poole of London acting as his assistant, successfully making a swift flight to Chew Magna, some 12 miles away, where they descended about 20 minutes later. The following morning Alexander entertained his guests at his new home, The Mount, Batheaston, where, in addition to demonstrating a tethered balloon inflated from a specially installed gas supply, he showed them his experimental works and laid on a fascinating series of aeronautical demonstrations on nearby Bannerdown.

Because of the dangers to life involved in undertaking high altitude meteorological ascents, during the 1890s scientific attention had been focused on the development of small unmanned balloon sondes which could carry the necessary recording apparatus aloft. These were designed to burst at a preset altitude, after which the instrument package would be parachuted back to earth. Following an international conference in Paris in 1896, in almost every European country such ascents started to be made on a regular basis, but in England only Patrick Alexander's private enterprise did anything to rectify the country's apathy. One of the first of these, which was released from Bath on November 8th 1900, travelled to Cricklade, in Wiltshire, and



Edwardian Bristol. A coal-gas filled balloon ascends during a fête at the Zoological Gardens, Clifton (Author's Collection)

this was followed by the first paper sonde on December 6th. Alexander's work in this field resulted in him becoming a fellow of the Royal Meteorological Society in February 1901 and the experiments with sondes released from Bath were to continue for nearly three years, during the course of which a balloon set loose on July 2nd 1903 and subsequently recovered at Alfreton, Derbyshire, was found to have reached an altitude of 65,600 feet, the highest then achieved in England.

By the middle of the first decade of the twentieth century, sport ballooning had become popular enough for the Aero Club to organise the first official balloon race in Britain, an event which saw some seven competitors ascend from the grounds of the Ranelagh Club at Barn Elms, in London, on July 7th 1906. This was followed on September 30th by the first of the famous James Gordon Bennett International Balloon Races, which on this occasion started from Paris. Although Bath Gas Works field was a convenient place for inflating balloons it only started to become popular with sport balloonists after Griffith Brewer, on the occasion of his 64th ascent, chose to fly from there accompanied by Charles J. Glidden of Boston, Mass. For this, the first manned balloon flight from Bath since 1902, Brewer employed the 35,000 cu. ft. balloon 'Lotus' which lifted off at 4.15 pm on May 20th 1908 at the start of a very successful 3 hour 38 minute flight which finally ended 16½ miles away at Blagdon. After this Brewer undertook several more successful flights from the gas works and his exploits were followed in succeeding years by other sport balloonists including the Hon. Mrs Asserton Harbord, an enthusiastic member of the Aero Club, who, in the course of 150 ascents made before 1910, had crossed the English Channel five times. During at least one of these adventurous flights she was accompanied by Mr C.F. Pollock, a gentleman who also flew with her when, on September 25th 1909, she ascended from Bath Gas Works in the 50,000 cu. ft. balloon 'L'Esperance'.

While Bath was becoming a popular venue for sport balloonists the Zoological Gardens at Clifton, in Bristol, also featured balloon ascents which took place during fêtes held in the grounds. However, one of the more unusual events of this period, which was also witnessed by a large number of Bristolians, occurred at about 9.30 pm on the evening of August 6th 1910 when Ernest Thompson Willows (1886-1926) hovered over the city in the 'Willows II', his home-built 21,000 cu. ft. non-rigid airship. This was carried out during the course of a flight which took him from his home town of Cardiff to London, via Clevedon, Bristol, Twerton, Calne, Marlborough, Newbury, Reading and Esher and which established his reputation as one of the Britain's leading airship designers. Evidence of the high esteem in which he was held is provided

by the fact that when the Royal Aero Club issued its first four certificates to airship pilots in February 1911, Willows was the sole civilian recipient.

Also attracted by the possibilities offered by lighter-than-air flight was the well known local dare-devil 'Professor' Charlie Stephens (1862-1920), the 'Demon Barber' of Bedminster who lost his life attempting to go over Niagara Falls in a barrel on July 11th 1920. He is known to have made a number of spectacular ascents in his native city prior to the outbreak of the First World War and on one such occasion, after successfully parachuting out of a balloon above the Bristol City Football Ground, Stephens landed on a nearby railway track only to find himself in the path of a fast approaching train! To add to the drama during the ascent the balloon itself narrowly missed the high chimney stacks at the nearby Capper Pass works, while among the four passengers was Stephen's wife Annie who, being in an advanced state of pregnancy at the time, not surprisingly gave birth soon after! It is interesting that among the letters received prior to his departure for America in 1920 was one from C.G. Spencer & Sons, the balloon manufacturers, which made particular mention of Stephen's daring parachute descents.

Intercontinental Airships

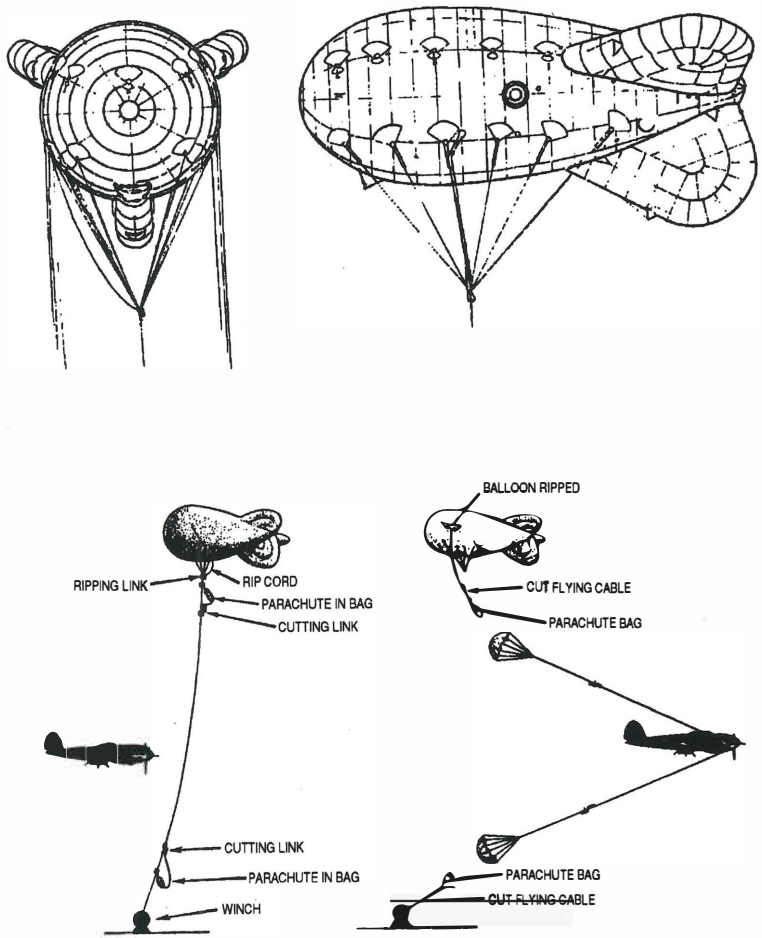
The First World War effectively changed many aspects of British life and one casualty of this was a loss of interest in sport ballooning, although the Gordon Bennett International Balloon Races were still held annually between 1920 and 1938. The aeroplane, which had seen such rapid development during the recent conflict, was now the preferred means of aerial transport and work in the field of lighter-than-air flight was for some years restricted mainly to the design of special balloons for ultra high altitude research and to the construction of very large rigid airships. These had been extensively developed just prior to and during the 1914-18 war, particularly by the Zeppelin Company in Germany, and in the post-war period they were seen as the ideal means of carrying people relatively quickly over vast distances in great comfort. During the early 1930s a number of airships made demonstration flights around the country and several paid visits to Bristol, the first to arrive being the British R-100 (G-FAAV) which overflew the city at midday on January 29th 1930. This was followed by the German 'Graf Zeppelin' (D-LZ127) on August 19th 1931 and again on July 3rd 1932. The public's love affair with the airship was, however, short lived and the destruction by fire of the Germany's 'Hindenburg' at Lakehurst, New Jersey, on May 6th 1937 put an effective end to the further development of this type of aerial transport.

The Second World War Balloon Barrage

During World War Two balloon barrages were installed at a number of locations to act as a passive form of defence, designed to force enemy raiders to fly higher, and thus bomb much less accurately. A preliminary survey of Bristol was carried out in July 1938 and as a result it was decided that the presence of Filton aerodrome prevented the use of balloons to cover the whole area. Two small independent layouts were therefore proposed to protect the harbour installations in the city centre and at Avonmouth and on November 1st 1938 RAF Balloon Command was formed to co-ordinate work throughout the country. The provincial barrages authorised were then organised into Auxiliary Air Force Balloon Squadrons and in the various localities Balloon Centres were also formed to administer and provide a peace-time headquarters for the new squadrons, as well as overseeing the assembly and testing of balloons and the training of their crews in time of war. Although the balloon barrage in the Bristol area was the responsibility of No. 11 Balloon Centre, which was established on January 16th 1939 at the Territorial Army and Auxiliary Forces Association premises in Clifton, it was only after the opening of a temporary office at 57 Victoria Street on February 6th that recruiting for the three 'County of Gloucester' Squadrons, Nos. 927, 928 and 929 was able to begin. July 8th saw the appearance of the first barrage balloon in Bristol and although a foretaste of things to come, it was, in fact, only a demonstration set up on the Downs for the benefit of local people. Nevertheless, on August 9th, a new camp at Pucklechurch was handed over as the permanent home for No. 11 Balloon Centre and within a month barrage balloons were flying in their protective role from a number of sites around the city.

The standard barrage balloon deployed in the Bristol area was the LZ (Low Zone) type which was designed to be flown from a mobile winch at a maximum altitude of 5000 feet. It was just over 62 feet long and 25 feet in diameter at its widest part, with a hydrogen capacity of 19,000 cu. ft. and was so designed that when an aircraft struck the cable it was severed at the top and bottom by two special explosive links. The aircraft thus carried away the main portion of the cable with open eight-foot diameter parachutes at each end, these exerting enough drag to stop the victim almost dead in the air and send it crashing to the ground. Simultaneously, as the cable parted from the balloon a wire ripped off a patch which allowed the hydrogen to escape, causing the envelope to descend slowly to the ground.

With war clouds gathering, on August 25th the local balloon squadrons were mobilised, No. 927 subsequently moving to Avonmouth,



General arrangement and operation of the wartime 'Low Zone' barrage balloon. This type was deployed extensively around Bristol between 1939 and 1944

928 to the area around Clifton, Pill and Portishead and 929 to sites in East Bristol. However, this arrangement was to be somewhat short lived for on October 19th No. 929 Squadron transferred north to protect the Forth Bridge, while on November 24th No. 928 Squadron departed for Felixstowe leaving just No. 927 Squadron to man both the Bristol and Avonmouth barrages. Although a replacement, No. 951 Squadron, began forming at Pucklechurch on December 15th, it was to be March 30th 1940 before the new unit had received enough men and equipment to finally be declared operational.

By this time Sir Stanley White, the Managing Director of the Bristol Aeroplane Company, was becoming concerned at the lack of protection for his factories so on May 27th he wrote to the RAF requesting that a balloon barrage should be provided to protect the manufacturing complex in the Filton area in spite of the fact that he was well aware of the difficulties this might cause to any fighters operating from the nearby aerodrome. The response was rapid and two days later White was informed that he would get his balloons, No. 935 (County of Glamorgan) Squadron being transferred from South Wales to Filton where they commenced operations on May 31st. However, by the summer of 1940 two problems had been highlighted which were to plague balloon barrages throughout the war. The first of these involved lightening strikes during thunder storms, and in the Bristol area the most serious incident of this type took place on the night of July 26th when a total of 28 balloons were hit and brought down in flames. The other unfortunate tendency was for balloons to break free from their moorings and as they floated over town and country, often with their steel cables still attached, they left behind a trail of damaged buildings, as well as electricity cables and telephone wires cut down as if they had been cobwebs! Nevertheless, in spite of all the difficulties, by the beginning of August a comprehensive balloon barrage was in place around Bristol, with No. 927 Squadron, based at 'The Chalet', Henbury, flying 32 balloons to protect Avonmouth Docks, No. 935 Squadron at RAF Filton deploying 24 balloons around the BAC works and No. 951 Squadron, which operated from 3 Caledonia Place, Clifton, covering the City Docks complex with a further 40 balloons.

Notwithstanding the sterling service given between June 1940 and July 1941, during which period six balloon operators in the Bristol area had lost their lives due to enemy action, by the end of the year the reduced threat from German raiders coupled with a manpower shortage was leading to the amalgamation of balloon squadrons throughout the country. Locally, this process began on January 14th 1942 when No. 951 Squadron was absorbed by No. 927 Squadron and later in the year

in a further attempt to solve the personnel shortage, the enlarged squadron began to receive WAAF operators to replace the men. The first three trained female balloon crews arrived on August 13th and by early 1943 women had taken control of a number of Bristol's sites. Shortly after, the amalgamation process reached its ultimate conclusion, No. 935 Squadron joining with No. 927 on April 14th to form the strangely titled No. 927/935 Squadron, the headquarters of which was established at 'Drinagh', Sneyd Park. This unit continued to fly the local barrage until July 12th 1944, by which time the raids on the West Country had ended enabling much of the equipment and a number of personnel to be transferred to South-East England to counter the 'Flying Bomb' menace.

Although the barrage balloons around Bristol failed to bring down any enemy aircraft, they certainly did much to prevent accurate shallow dive bombing taking place and therefore probably saved a number of important facilities from destruction. Their main disadvantage, however, was the danger they posed to RAF aircraft and during 1941 the Filton barrage was responsible for bringing down a Hurricane on February 21st and a Magister on March 20th, the pilots of both machines being killed. The Bristol barrage also proved to be hazardous and when a Wellington bomber flew into a balloon cable in the north of the city on April 30th 1941 three of its crew perished in the subsequent crash in St Andrew's Park.

Modern Hot Air Sport Ballooning

Today, by far the biggest application for balloons is the recreational or sport use of hot air balloons and the one man responsible for the rebirth of this type of aerostat was the American, Ed Yost, who has rightfully been hailed as the 'Father of Modern Hot Air Ballooning'. It all started in 1953; when working on a military contract to construct high altitude gas balloons for use in espionage and stratospheric research he used a plumber's blow-torch to inflate a small polyethylene envelope which was successfully launched. Yost explored the concept further during the mid-1950s and after setting up Raven Industries, his own balloon manufacturing concern, he became the first man to fly in a modern hot air balloon when he ascended in the Raven prototype from Bruning, Nebraska, on October 10th 1960. The envelope of this historic balloon was constructed of Mylar/Nylon laminate and inflated with 30,000 cu. ft. of hot air from stainless steel burners fed by liquid propane carried in special lightweight cylinders, giving it a lifting power of some 450 pounds.

Modern sport ballooning had arrived and the new technology was ably demonstrated across the Atlantic, when on March 13th 1963 Yost,

together with Don Piccard nephew of the famous pre-war stratospheric balloonist Professor Auguste Piccard, made the first crossing of the English Channel in a hot air balloon. This fired the enthusiasm of a number of people in England and in August 1966 seven members of the British Balloon and Airship Club formed the Hot Air Group to build and operate their own balloon for sporting purposes. Their first venture, the 'Bristol Belle' (G-AVTL), was financed with help from a national newspaper and the British Oxygen Company, while its assembly was undertaken by Malcolm Brighton at Blackbushe, with the manufacture of the envelope contracted out to Vacuum Reflex Ltd. Completed in the summer of 1967, the 65,000 cu. ft. balloon was first flown from Weston-on-the-Green, in Oxfordshire, by Wing Commander Gerry Turnball OBE, AFC on July 9th, and accompanied by Don Cameron, a young aeronautical engineer, it flew the six miles to RAF Bicester. The balloon was then moved to the Bristol Gliding Club's site at Nympsfield, in Gloucestershire, undertaking a number of local flights in the spring and summer of that year. Thus a new sport and industry was born in this country, which has since grown in Bristol to a scale which would have seemed quite inconceivable 30 years ago, and which has seen the name of Don Cameron become known world wide.

Born in 1940 and brought up in Scotland, Cameron's introduction to aviation came through flying Chipmunks with the Glasgow University Air Squadron before graduating in aeronautical engineering in 1961 and industrial engineering from Cornell, USA, in 1963. Upon his return from America he joined the British Aircraft Corporation at Filton, but moved to Rio Tinto Zinc, in Avonmouth, a few years later where he undertook operational research on computers. Following the initial success with the 'Bristol Belle', in 1968 Messrs. Cameron, Turnball, Goldsmith and Westwood formed Omega Aerostatics at Woking to undertake the manufacture of hot air balloons on a part-time basis. However, this arrangement was only temporary, for in 1970 Cameron left his full-time job and severed his connection with the Omega group to set up Cameron Balloons, his own Bristol-based manufacturing concern which produced six balloons that year, the first of which, the 84,000 cu. ft. 'Flaming Pearl' (G-AYAL), made its maiden flight in April. Initially, manufacturing was carried out in the basement of his home in Cotham Park, but moved two years later to a nearby disused church hall where there was some 7000 sq. ft. of available space. Rapid growth then followed and by the end of the 1970s more than 100 balloons were being assembled each year by Cameron Balloons, with the 1000th being delivered in 1984, the baskets for all of which had also been made locally, woven in cane by the National Workshops for the Blind in Bristol. By

this time Cameron Balloons had outgrown their Cotham factory and had moved to one of the former Wills tobacco factories across the city at Bedminster, where during the next ten years the company grew to become the world's largest constructor of hot air balloons.

The Bristol International Balloon Fiesta, the area's other famous link with present day sport ballooning, also has Don Cameron to thank for its success as it was he, a world famous balloon pilot in his own right and the fiesta's original Meet Director, who did so much to persuade fellow balloonists to participate in the first fiesta which had been organised by the Bristol Junior Chamber of Commerce & Shipping. As a prelude to this, early on the morning of Tuesday September 4th 1979, Cameron, with Councillor Tom Clarke the Lord Mayor of Bristol aboard, ascended in the company of six other balloons from College Green before the main event was held that weekend in Ashton Park where 31 competitors from Britain, Germany, Luxembourg and South Africa had assembled. Flying commenced on Friday with a 'Fox & Hounds', where one balloon took off and others chased it and a 'Hesitation Waltz', in which the balloons had to land as close as possible to landmarks previously chosen by the judges, followed on Saturday by an evening of 'Fun Flying' which was rounded off by individual sporting flights on Sunday afternoon. This was obviously a successful formula and just two years later some 46 balloonists had entered, ensuring that by the late 1980s the Bristol International Balloon Fiesta had established itself as the most important such annual event in Europe, a position it still occupies today.

The Last Great Challenge

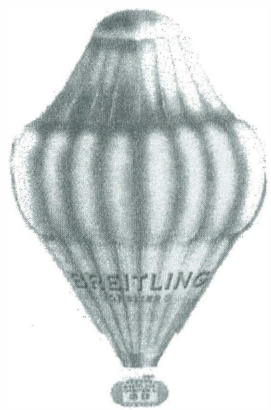
Although since 1980 there have been 16 recognised attempts to undertake the last great challenge in aviation, the circumnavigation of the world by balloon, it was not until March 1999 that a team at last achieved this feat. To accomplish it they used the Breitling Orbiter 3 (HB-BRA), an AM14 'Rozier' balloon which weighed some nine tonnes, stood 55 meters high and was constructed with a small helium filled ballonet fitted in the top of the envelope to support a protective skin intended to shade the main gas canopy from the sun's rays during daylight hours. However, at night, when the helium inside the Orbiter cooled, the craft started to descend, so to reverse this process the burners beneath came into operation to heat up the gas, which expanded, thus enabling the balloon to remain at the correct altitude to be carried by the fast high altitude winds, known as jet streams, normally found at between 23,000 feet and 39,000 feet. Designed to operate safely at up to 43,000 feet, if necessary, the massive balloon contained 650,000 cu. ft. of helium, while its pressurised Kevlar and carbon fibre capsule carried

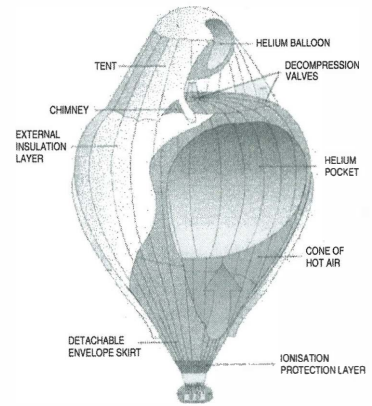
32 containers of propane each filled with 232 litres, hopefully enough fuel to last for 21 days. This giant Bristol-built Cameron R650 balloon was flown by a two-man crew, Bertrand Piccard, a 41 year old psychiatrist, grandson of the famous Auguste Piccard, and Brian Jones, aged 51, an aeronautical engineer and professional balloonist from Erlestone, near Devizes.

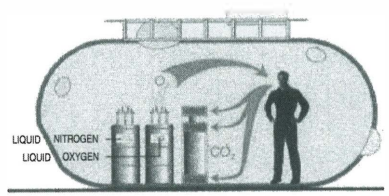
Born March 27th, 1947 at Clifton in Bristol, Brian attended Hengrove School before, at the age of 16, he joined the RAF where he learned to fly both helicopters and gliders. However, after 13 years working as a loadmaster he returned to civilian life and in 1985 was introduced to the delights of ballooning. As a result he soon acquired a commercial balloon flying licence and later went on to become an instructor and a Civil Aviation Authority certified examiner. Originally the Breitling Orbiter 3 project manager, responsible for the construction of the gondola and flight systems, Brian Jones was plucked from obscurity in November 1998 when fellow Briton, Anthony Brown, pulled out as co-pilot following personality clashes with Bertrand Piccard.

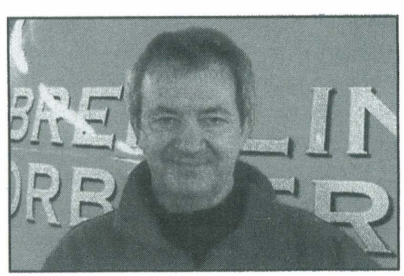
The Breitling Orbiter 3 was launched from the Swiss Alpine village of Chateau d'Oex at 08.06 hrs GMT on March 1st 1999 and after drifting over North Africa it caught a jet stream and headed across the Arabian Desert, India and on to China. The treacherous six day Pacific crossing proved fairly smooth, but some seven miles above Central America both pilots developed breathing problems and had to use emergency oxygen. However, the multi-million pound balloon soon caught a favourable jet stream which carried them on their last leg, across the Atlantic, at 90 mph. Jones and Piccard then went on to reach the 9.27 degrees west 'finish line' 35,500 feet above Mauritania, in North-West Africa, at 09.45 hrs GMT on March 20th, after flying 26,602 miles in 19 days, 1 hour and 49 minutes. The balloon, however, continued on until it was eventually put down safely in the desert 44 miles west of Mut, in Egypt, at 06.02 hrs GMT the following day after having covered 29,054.6 miles in 19 days, 21 hours and 55 minutes at an average speed of a little over 60.27 mph.

As a result of this magnificent achievement the team won a $1 million dollar prize put up by Anheuser-Busch, makers of Budweiser beer, while Brian Jones also received a Lord Mayor's Medal immediately upon his return to Bristol, he and Piccard already having been presented with Aero-Club de France Gold Medals. The intrepid pair were also awarded the prestigious British Balloon & Airship Club's Charles Green Salver by Her Majesty the Queen, who made a last-minute change to her busy schedule in Bristol on April 1st specially to visit Cameron Balloons and meet the pilots, a fitting climax to 215 years of ballooning in the area.









The round the world balloon 'Breitling Orbiter 3' manufactured by Cameron Balloons of Bristol shown with Brian Jones its Bristol-born co-pilot (Breitling, Switzerland)

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