



A HISTORY OF THE HAMPSTEAD SCIENTIFIC SOCIETY

Since the 1970s there has been an increasing problem in maintaining numbers. Some loss may have resulted from an attempt by a small group of younger and rather politicised members to change the nature of the Society. However that was only a brief incident and the greater blame must be placed on the increased influence of television and the loss of popular interest in science. A particular problem has been the difficulty of recruiting and keeping junior members, those under 18 or in full-time education; it seems that the pressures of school-work at least among the academically inclined have increased and parents are no longer willing for children under 15 to be out at night unescorted. Paid-up numbers today hover around the 100 mark.

Listening and Talking

The core of the Society's activity since 1899 has been the monthly general (or ordinary) meeting with its scientific lecture from September to May, some seven a session in most earlier years and now regularly nine a year. Despite gaps in the records we can estimate that over 700 such lectures have been given since 1st December 1899 when the vicar of St Stephen's, the Rev J Kirkman, lectured on fungi. The second lecture of this first session was by the treasurer on "The Science of Character". The third was by the remarkable C O Bartrum on the "The Mechanics of the Bicycle". This was an outstanding exposition in which he dealt with stresses and strains and friction -- the air resistance, the tangent spoke, hollow tubes, gearing, etc. It was the first of a number of high quality lectures given by this founder-member over the years.

The subject of his lecture was topical. It was a time when many liberated women were cycling in bloomers or "rational dress", and clubs and outings were the fashionable thing. This topicality has been a feature of the ordinary meetings up to today. In 1900 Dr Womack, a medical man, lectured on Wireless Telegraphy, at a time when Marconi had achieved cross-channel communication but before he had set up his station across the Atlantic. At this lecture he put a Branley coherer and a bell at one end of the lecture room and demonstrated how a wireless signal across the room could ring the bell. Topical, too, was Dr Tebb's lecture on hypnotism, then a novel phenomenon sometimes utilised by doctors. A W Stokes, the public

analyst, spoke on milk and milk products, claiming that air and milk were the only necessities for life. He demonstrated sterilised and "peptonised" (partially pre-digested) milk then recently on the market. The last lecture of this 1899-1900 session was given by Frank Podmore on the sub-conscious mind, a new enough idea for most people at that time.

The Society's first session thus entertained and informed members in the fields of mycology, human physiology, psychology, medicine and technology. This fairly wide spread of interest has been maintained during the Society's existence, though there was one period (1949-1951) when out of twenty lectures only three were not on natural history. The president's own interests have naturally tended to give some bias, as when anthropology increased during the Petrie era. Sir Flinders did not spare himself and showed the range of his exciting mind in seven lectures he gave in addition to those at the conversaziones, including: "History before Writing", "The Formation of the Alphabet", "The Development of Tools and Weapons", and "Changes in the Coast of Britain" — all these from a man who was officially an Egyptologist. The wide scope has been continued and we can list, in addition to those above, the following general fields: astronomy, ornithology, geography, meteorology, physics, chemistry, technology and electronics.

It is notable how many lecturers put great effort into the preparation of demonstrations. In more recent decades there has been a tendency to rely on the lantern slide and overhead projector although there are still lecturers who bring cases full of apparatus, as when Dr A W Coombes of the Post Office Research Station brought a small computer to demonstrate his method of optical character recognition and Joan Hall-Craggs brought tape machines to demonstrate and analyse bird song. Peter Wallis brought several working lasers for his lecture on them and other practical demonstrations for his lecture on infra-red. The present-day availability of gadgets driven by mains electrical power makes such demonstrations easy and we must look back with admiration to the cardboard models, the chemicals, the string and sealing-wax constructions, made by lecturers to illustrate their themes. Many of us would wish to have been present in December 1902 to hear Sophie Bryant discourse on "Bees as Builders of the Honeycomb", when she made models to show the mechanical strength and

economy of material in a comb and how spheres packed closely would deform into twelve-faced solids with rhombic faces. She was a brilliant woman and the lecture must have been a triumph.

The general lectures have shown a changing emphasis as the Society has kept up with scientific progress, and first one topic and then another has become a frontier of research or a technology of everyday life. In psychology, for example, the 1900 lecture was on the subconscious as a concept, to say nothing of the lecture in 1903 on reading character from physiognomy, whereas in 1973 the topic was schizophrenia. In medicine it was a new thing for most people in 1902 to discuss bacteria, before there were any anti-bacterial drugs, but viruses were more important in 1970, and by 1972 interest had veered to such devices as the artificial kidney machine.

The applied physics of 1900 included wireless telegraphy and X-rays. By the 1970s it was more concerned with communication by glass fibre or satellite. A discussion on some odd fish in 1901 no doubt fascinated the naturalists but the emphasis had changed to ecology by 1914 and even more so in 1973. In 1912 the mechanics of flight was very much an advanced subject but who today wants to know anything about all-too-familiar aircraft? Indeed, we receive instead talks by prospective cosmonauts! Would a lecturer today fascinate an audience, as the 1912 lecturer did, by weighting an envelope on the fore-edge with a halfpenny to make it glide? Aeronautics has moreover merged to some extent into the techniques of aerospace, which is also concerned with some aspects of what used to be the astronomer's field. The first general lecture on astronomy was in 1904, when the subject was Mars. Interest had changed to cosmology in 1969, after years of radio-astronomy, and the lunar surface in 1972, some time after Aldrin and Armstrong had walked on the Moon. Atomic energy was not even a gleam in a physicist's eye in 1899 but by 1945 it was being explained to the Society.

New subjects have displaced many of the older ones. Geology and associated subjects have ceased to have their old wide appeal, though this has been partly due to the growth of separate geological societies. Smith Woodward's *conversazione* lecture of 1914 has been mentioned and two years later Professor Underwood based almost all his lecture on the Piltdown skull. This was blown sky-high before the Society in 1954 by Dr J S Weiner, one of the team that exposed the whole hoax based on artefacts planted in the gravel by

someone who cannot be definitively named, though Charles Dawson is the main suspect. We have become sceptical of fragmentary evidence. And today, as shown in the ordinary lectures, we have become more interested in oceanography, new materials, drug abuse, rocket propulsion, diet, extra-sensory perception, electronic music, solar energy, organ transplantation, and climate change.

When the Society began, furthermore, there was no electronics. The semiconductor revolution - and it is no less - came with the invention of the transistor in 1947 and it has changed all technology - bringing the development of the universal computer and making it possible to land on the Moon, to mention only two applications. Surprisingly, there were few if any lectures to the Society on solid-state physics or the transistor, but the balance was subsequently restored with presentations on "Lasers" (1975), "Liquid Crystals" (1978), "The Age of Silicon" (1978), and "Infra-red" (1979).

The ordinary lecturers since 1899 do not constitute such a prestigious list as the *conversazione* stars but there are among them many who have become famous. In the beginning, however, all lecturers were members, and what a collection of virtuosos they were! C O Bartrum lectured on (in addition to the bicycle) the form of the Earth, "talking machines", guns (in 1915), and time, all expounded with erudition and skill, but his name is remembered by none. Walter Baily lectured on the absolute zero of temperature in 1902, before liquid helium had been made or superconductivity discovered, before the word cryogenics had been coined. His name will not be found in any dictionary or biography. His lecture in 1906 on "Patterns in Space" was a remarkable adventure into the mechanisms of aesthetics. And what can we say about E C Crump, the bank manager, who could lecture on "Nature's Forces"? Other members are better known, Marie Stopes, a young palaeobotanist, talked on missing links in the plant world in 1907. H A Wilson, who became a famous physicist, lectured in 1909 on "Modern Views on Matter". W M Bayliss (later Sir William), a physiologist, introduced the Society to the mysteries of the ultramicroscope. Silvanus P Thompson, the now-forgotten phenomenon, lectured on "Lodestone Lore" - this in addition to his *conversazione* lectures. And every president except Edward Bond has taken a share in lecturing, some of them a very full share. Dr Edholm lectured six times. Heinz Wolff has given at least eighteen lectures, many on subjects concealed

under the title: "The President's Evening". Professor Robert Weale, the present president, has lectured on "The Aging of the Eye", "Was Leonardo Short-sighted?", "Modern Theories of Aging", "Colour Vision" and "Optical Illusions".

Other members of the Society have also done their bit. C L (Ben) Boltz, who was the science correspondent of the *Financial Times*, not only lectured several times but wrote the Society's 1974 book "Seventy Five Years of Popular Science" after invaluable research into the Society's history. It is from his basis, and indeed often his words, that this centenary book arises. Peter Wallis lectured on "Lasers", "Infra-red", "Periodic Extinctions of Species", "Sonar and Submarine Detection", "Interstellar Travel" and "The Dating of Ancient Egypt".

Some of the well-known non-members who honoured the Society were Edridge-Green, an exponent of controversial views on colour vision, Maxwell Garnett, a Smith's Prizeman at Cambridge and first secretary of the League of Nations Union, A S (later Sir Arthur) Eddington, who talked to the Society on his own original research on star streams, and R Ruggles Gates, one of the great botanists, winner of more medals than a war veteran. One of the founders of the discipline called ecology was A G (later Sir Arthur) Tansley, who lectured on this subject to the Society as early as 1914. A very famous pioneer of meteorology, Sir W Napier Shaw, discoursed to the Society in 1917 on the rise in importance and prestige of his own subject, mentioning the Society's own meteorology station. Ernest Gold had also talked about the upper atmosphere in 1913 and discoursed on rainbows in 1921. There was also G A Sutherland a physicist who became the father of auditorium acoustics in Britain. Eminent women who have lectured include Margaret Murray, Evelyn Cheesman (noted entomologist) and Mrs Mortimer Wheeler. Professor da C Andrade lectured on atomic energy in 1945 before the last fires at Hiroshima had died and when there was no nuclear reactor in Britain. In 1946 Sir Alexander Fleming in person talked about penicillin. More recently we have listened to Nobel Prizewinner Sir Peter Medawar, one of the pioneers who have made organ transplants viable, the microbiologist and Nobel Prizewinner Sir John Kendrew on Genetic Engineering, and Sir Hermann Bondi, who has lectured on "The Foundations of Cosmology", "Special Relativity", "The Structure of the Stars" and "The Theory of Gravitation".

It is a salutary experience to turn over the pages of the Society's history and scan the contents of the lectures. It is hardly believable, for example, that C O Bartrum's talk on the bicycle would be echoed three-quarters of a century later at an august Royal Institution Friday evening discourse by Alex Moulton, the inventor of the first real change in bicycle design this century. Admittedly Mr Moulton had a greater command of analytical and measurement techniques and materials, yet the pattern had been set by the forgotten Mr Bartrum.

It makes one ponder to read that in 1901 a Society member, John Samson, trained as a civil engineer and architect but professionally editor of the South American Journal, was discoursing on the science of language. He must have been one of the last of the philologists. It is interesting to look at what Walter Baily had to say about the absolute zero of temperature. His figures were wrong for the boiling point and melting point of hydrogen, and helium was still regarded as a gas suitable for thermometry down to absolute zero, for this was 1902. Nevertheless this ex-inspector of schools gave as good a lecture as many a professional physicist could do today when talking to such an audience - with demonstrations too. The prudent warnings given, also in 1902, by Dr Shenton against believing reports of cancer-cures by X-rays are still topical. He emphasised that though X-rays had made growths disappear it was impossible to say that the cancer had been cured until the case had been watched for many years. Today, regression for five years is taken as equivalent to successful treatment. Yet Dr Shenton was saying something like this 97 years ago.

There was an account in 1903 of a new method of printing called electrography. It was not an anticipation of xerography. Ions of a metal were transferred by electrolysis in the water of dampened paper and could be developed into visible marks with silver nitrate and hydroquinone. The lecturer, Charles Darling, claimed that 36,000 copies an hour could be printed by this method. This was, it seems, the only occasion in the history of the Society when a new technique that could be commercially exploited was described; it has however disappeared with many other inventions.

The scientific rigour of some early lectures was shown in Professor Cassie's talk on Mars. He described the so-called canals and

expressed doubts of the objectivity of observation. He described tests with boys in Greenwich Hospital; they were shown discs roughly representing Mars and told to draw what they saw. Those who were furthest away drew lines across the surface similar to those drawn by astronomical observers of the "canals". Scientific criticism was also shown in Frank Podmore's 1905 talk on "The Evidence for Spiritualism". He described it as the new religion with some two million adherents. His account of how revelations could be faked was illustrated with demonstrations. He showed how a medium could free his hands while people at the seance were convinced they were still holding them. His lecture, involving some neat conjuring, must have been riveting. Podmore explained how a physicist of the stature of Sir William Crookes could easily be deceived.

President Sir Samuel Wilks at 81 gave a special lecture with a Goethean flavour. He talked on spirals. He began by reminding his listeners of the mechanical advantage of the inclined plane, which allowed a man to roll a heavy barrel up a plank whereas he would be incapable of lifting it. Thus an object could be raised to a height with a comparatively small effort. If this inclined plane was wound round a vertical pillar the result was a spiral, more correctly a helix, which provided the easiest way of gaining height without departing from the vertical axis. From works on natural history it was possible to show that climbing plants used this helical technique. Many shells too showed beautiful spiral structures and Sir Samuel mentioned the nautilus with its logarithmic spiral, a form in which the radius of the curve is increasing exponentially as the animal grows. Sir Samuel, a physician of eminence, then went further and stated that a spiral or screw-like motion took place in the human gullet and intestines and even the heart, which he demonstrated by wrapping round a heart-model a network of thread, some of which were red. He quoted the poet Cowley on the helical flight of an eagle and ended by comparing man's course in life to a spiral. A quotation from the Wendell Holmes poem on the nautilus was the peroration to a lecture of a very rare type, blending wonder with scientific fact and giving physiology an aesthetic tone.

There have been few men with the vision even to try such an a exposition. All the same a vice president, Walter Bailly, in the following year did make a valiant attempt. This long-forgotten

predecessor to Buckminster Fuller demonstrated with cardboard models and a Dutch cheese how a fourteen-faced solid was the most generalised figure to fill three-dimensional space.

Many demonstrations were entertaining. When Dr Womack talked on the tonal qualities of musical instruments, long before there was any cathode-ray oscillograph to make waveforms visible, he provided organ pipes and tuning forks and showed how combinations could produce beats to make the vox humana. Professor E H Starling was one of the most noted physiologists of the day and became known throughout Britain for his evidence in a legal battle over a new proprietary much-advertised product based on garlic. When in 1907 he lectured to the Society on "The Mechanism of Digestion" he put in his mouth a mixture of starch and water and then spat it out into a test-tube to prove that the saliva had turned the starch into soluble sugar. Dr Reginald Clay, a superb public performer, fascinated his audience by blowing soap bubbles inside one another and also achieved a bubble fifteen inches in diameter. In 1909 C O Bartrum when demonstrating talking machines showed the new "auxetophone"; this instrument had a sound-box worked by air controlled by the needle on the record.

If we skip half a century we come to the Society's jubilee meeting (1959) at which Dr Rainer Goldsmith in frock coat, top hat and side whiskers (hired at fifteen shillings) talked of science as it was in 1899; the recorded voice of Heinz Wolff, later to become president, purported to be a traveller to Mars in 1999 discovering life that looked, according to a newspaper reporter, like ball bearings.

A comparative newcomer to the general meetings is the scientific film, which came into its own after World War II. It is an excellent medium for exposition and entertainment and some of the films from, for example, Shell and ICI and many official establishments are masterpieces. Films became quite usual after 1949 and by 1953 a film evening was a normal event of each session instead of a lecture. Of course one cannot ask a film a question and it is impersonal and unlikely to replace the question and answer of lecture meetings. Nevertheless technically it can achieve what no lecturer, however ingenious, can hope to do, and it often brings people of great distinction such as Nobel Prizewinner Sir George Porter, to the audience.

Watching Hampstead's Weather

There is no meteorology section as such in the Society but there is an honorary meteorologist, a fact due to one man, Eric Ludlow Hawke, whose passion for, even obsession with, weather data lasted all his life. He was born into a middle-class family in Hampstead and went to Westminster School and Trinity College, Cambridge, and from his boyhood he had but two chief interests – music and meteorology, with a subsidiary third of astronomy. While still a scholar at Westminster he was made a fellow of the Royal Meteorological Society (which he subsequently served in a variety of capacities for over two decades) and he joined the Hampstead Scientific Society in 1909.

When an observatory and meteorological station were set up for the Society on the highest point in London, a famous meteorologist of the time, H R Mill, at whose suggestion the station had been established, spoke at the official opening about the need for meteorological records that "could reasonably be expected to be permanent". Eric Hawke, seventeen years old, took the responsibility for ensuring that this was so, and from 1910 to 1965 he acted as honorary meteorologist, and only one day's readings were missed for the fifty-five years (in World War II owing to an air attack). These 55 years of unpaid service and records in one place only should qualify him or the Society for inclusion in that Guinness book. His collation of the readings made by the Metropolitan Water Board's turncocks went on after he left Hampstead in 1929 after his marriage, for which he composed his own wedding march. He rarely took a holiday and when he did it was in England and he kept watch on the meteorological observations all the time. His subsequent homes - in Rickmansworth, Dagnall (near Dunstable Downs), and Wilstone (near Tring) - were themselves selected in part for the meteorological interest resulting from their topographic locations. He lived on his writings on meteorology (and perhaps a modest private income) -- two books and regular articles for several well-known newspapers. He also contributed regularly to *the Hampstead and Highgate Express*. From 1910 onwards his account of the year's weather was part of the Society's annual reports.

astronomy (fee 2s 6d for six) at Stanfield House and he wrote a regular column on astronomical and allied topics for *the Hampstead and Highgate Express* -- clear and interesting writing. When, owing to his initial drive, the Society was formed in 1899, the members benefited from his lectures for some ten years.

He was a school manager, on the committee of the Hampstead Subscription Library, and then in 1910 one of the Hampstead Board of Guardians, of which he became chairman. In 1917 he was elected to the Hampstead Borough Council and served on many of its committees. Indeed in any of his activities he was soon in demand for more work though it seems that he never sought the limelight in any egotistic way. He lectured frequently to the Society. He was primarily an educator and humanist and one of his unsung activities was to organise Christmas lectures for young people, at which he was still busy late in 1923 when he had to go into hospital for a serious operation. He seemed to be recovering at home when he began to run a high temperature and had internal inflammation and his stout heart failed on 10th February, 1924. At his cremation nearly a hundred people were present, including several members of the Society.

Clement Osborn Bartrum was the kingpin of the Society for 36 years and was, of the unknown amateurs, the most truly scientific and inventive. Born in Bradford, he became a worsted manufacturer and set up a small business in London. Although his main personal interests appeared to be in physics, astronomy and mathematics, he chose to study anatomy at Birkbeck College in the evenings and secured his BSc degree there. From 1904 to 1930 he was honorary secretary of the Society and from then until his death in 1939, aged 72, he was honorary treasurer.

Among the papers he wrote for the British Astronomical Association were *Star Chains and the Milky Way* and *The Appearance of Saturn at Opposition*. His major invention, in which he had the help of Joseph Kirner in the making, was a master-slave clock controlled by a pendulum, in which he used what he called "negative backlash" but today we would call negative feedback. It had never been done before. This clock is now in the Science Museum; Bartrum described the mechanism to the Physical Society in 1916, expounding the mathematics and mechanics involved. He also invented a way of

magnifying the movement of the mercury in a barometer by means of an ancillary column of coloured liquid. He was the representative of the British Astronomical Association on the geophysical committee of the Royal Society. From 1930 onwards he was secretary of the BAA and curator of its instruments. He had a great love of music and at the later conversaciones one of his daughters supplied the musical entertainment. When he died he left £100 to the Society. It would be an exaggeration to say that the Society never recovered from his loss, but there is a grain of truth there all the same.

Among the most colourful and extraordinary of members must have been Patrick Hepburn. He was born in February 1874. His father was a solicitor and Patrick joined his father's city firm. He came second in all England in his final examinations and obtained his LLB in 1899. Clearly he was a man of outstanding ability. He had an insatiable curiosity and tremendous energy. He joined the Society in 1910 and was at once the dynamic centre of the astronomy section. He loved cycling and there is a legend that on one ride to Ware the weather was so good that he went on to York. He did indeed cycle most of Britain. In 1902 he set out to make a complete set of photographs of Norman churches in the neighbourhood of Caen. He thought nothing of working all night at home in Hampstead, then taking a swim in the Hampstead pond and going off for a day's work at his city office. In 1911 the opposition of Mars was favourable for observation at the Society's observatory, so he set up a camp-bed there in order to be ready. He became so well thought of in astronomical circles that he was frequently given permission to use the 28-inch telescope at Greenwich on Sunday nights. During World War I he was a major in the RNAS and when in an observation balloon was hit by a violent gale; he used to boast laughingly that he was the only man to have looped the loop in a balloon. Only his presence of mind saved him from being thrown out to certain death. Part of his military service was spent in the Middle East and what did this extraordinary man do but learn Hebrew and translate for himself parts of the Old Testament. After World War I he was as active as ever with the Society's telescope.

He took to going on solitary walks in the mountains, especially the Lake District, and one hotel manager there described how Patrick Hepburn arrived many times at all hours of the night wet through,

and on one occasion with an injured leg. He acted as if the rules that applied to most people did not apply to him; test to destruction seems to have been his rule of life. On Christmas Day 1929 he arrived at the Swan Hotel in Grasmere at seven in the morning, breakfasted, and then walked about restlessly, solving mathematical problems according to the landlord. He had sandwiches for lunch and then set out in the fading mid-winter afternoon, in his knickerbocker suit and shoes too light for mountain-climbing, to cross the 2000-foot pass to Borrowdale, against all advice and in bad weather. And that was that. His body was found the next day lying in a stream near Rosthwaite. The cause of death was drowning and the verdict was death by misadventure, but it leaves one wondering.

The Society's stage has had dozens of such characters, not as odd and death-defiant as Hepburn or as inventive as C O Bartrum but certainly individuals. There was James E Whiting the naturalist. He had served a seven-year apprenticeship at Sir Henry Verney's estate at Whiting's birthplace, Claydon in Buckinghamshire. Then he had worked in nurseries at Clapton and had been "premier journeyman" at Welbeck Abbey. He was thus thoroughly trained as a sort of super-gardener or horticulturist. So what was he doing in Hampstead in 1899 making a living by giving lessons on "the violin, mandoline, guitar and banjo" at his home in Heath Street? As far as the Society was concerned he was its greatest naturalist, with trained eyes that saw things where nobody else noticed anything. He wrote a charming regular column for the *Hampstead and Highgate Express*, for the Heath was his. He was an extremely shy and sensitive man and in the first years of the Society his finds were always brought by someone else, but he could lead excursions, though he was not as good a lecturer as other early members. He was often called the Gilbert White of Hampstead, for he was said to have combined the observational accuracy of Gilbert White with the felicity of expression of Richard Jefferies. When he died in 1930 not one member of the Society attended the funeral! His collection of birds was his only memorial and these disintegrated after neglect and were thrown away.

The Society's meteorological interests have been looked after by just three members. E L Hawke ruled the roost until 1965 when he became seriously ill. He died two years later. Hawke was but a 14 year old schoolboy when he heard H R Mill lecture on the usefulness

of weather observations, and this very self-possessed young man persuaded the Society to set up its own weather-recording station as soon as the observatory enclosure was established in 1909. Robert Tyssen-Gee was a member for 56 years until he died in 1983, and was meteorology secretary in succession to Hawke between 1965 and 1983. The Editor of this volume is the third. More details about both E L Hawke and R A Tyssen-Gee can be found in an earlier chapter.

There have been so many in this supporting cast that it is difficult to choose. George Avenell, who gave the present telescope, was chief inspector and actuary to a bank from which he retired at once when it was taken over by Lloyds. He was a member of the Hampstead Selborne and Archaeological Society and was a fascinating lecturer on his native West Country. What comment can be made on E Compson Crump, the first treasurer, who, one discovers, was Lord of the Manor of Stottesdon?

The Baily family deserves a mention. Walter Baily, a founder-member, was the son of a QC, a second wrangler and Smith's Prizeman at Cambridge, and was called to the Bar. Then he gave up his practice to become HM Inspector of Schools, from which post he had retired when the Society was formed in 1899. One of his sons was Harold Baily, who was for a time a Liberal Party agent in Hampstead. He joined the Society in 1924 and married a research scientist (the Mrs Jessie Baily DSc, already mentioned). He was Mayor of Hampstead in 1930 and frequently acted as a delegate of the Society to the British Association annual meeting. At the age of 84 he slipped on the kerb in Adelaide Road, fractured his hip and subsequently died. There was Percy Moring "of independent means" who was happy to act as honorary lanternist, and whose collection of botanical specimens was accepted by the Natural History Museum. A sign of the changing twentieth-century times -- he was knocked down by a car in a Hampstead street at Christmas 1930 and died in hospital.

Amateurs all. As was Hugh Boyd Watt, described as a society secretary, who was the power behind the Local Records scheme after publication of *The Book*, in which he had written the chapter on trees. He represented the Society at the South Eastern Union for some years. Henry B Curwen was a solicitor, a founder-member determined, it seems, on everlasting life. At the age of 73 he broke a

leg skiing and was back on the piste the following season. He presented a spectroscope to the Society and won one of its photography prizes. He died at 96 in 1958.

Sir Henry Wood and Sir Edward Elgar, early members, no doubt counted as amateurs in science. And so did Frank O Salisbury, the painter.

Women have played a considerable part in the Society from its inception and it is no surprise to learn that two, Mrs Park and Miss Elizabeth Knight, were suffragettes. There were probably others of whom there are now no records, though it is worth noting lightheartedly that, despite memorable advice, a Miss Worthington trod the Society's stage in 1937 as assistant to Mrs Park.

The most notable of these women members was Marie Stopes. Her mother was a well-known Shakespearean scholar and her father an anthropologist. She took first class honours in her London degree and was one more famous product of the North London Collegiate School for Girls. She then quickly gained a PhD in Germany and a DSc in England. She was a palaeobotanist and lectured to the Society several times. She was the first woman ever appointed to the science staff of Manchester University. In 1918 she married H V Roe, pioneer airman and a founder of AVRO, and two years later she published the first of the books that were to make her hated throughout the country by one part of the community and worshipped by the other. This was her *Radiant Motherhood* (1920). From then onwards her name was synonymous with birth control and she wrote a play about it, which was banned. No woman in this century has been more vilified.

One of the most unusual members to be found studying science was Hugh Findon, for he was a local builder and decorator. He had been left a collection of mollusc shells by his grandfather and he set out to complete it, so it became well known in Britain and elsewhere. He was elected a Fellow of the Linnaean Society in 1906. He wrote the chapter on molluscs for *The Book*. But he also studied every aspect of natural history and was a much sought-after leader of excursions. He could talk intelligently on anything, whether the history of Hainault Forest, the age of brick buildings, the geology of the Colne valley or the effect of soil on vegetation. He was the mainstay of the

natural history section for years and he represented the Society at the South Eastern Union many times. In 1926 he fell off a ladder at work and received serious injuries, including the loss of one eye, and he never fully recovered, dying in 1929.

Ben Boltz, who wrote the 75th anniversary history of the Society which forms the basis of this centenary volume, will be remembered by many for his sometimes acerbic contributions on physics to the Society's discussions. In his professional life he was active in popularising science; for many years he was science editor of the *Financial Times*, a regular correspondent to *New Scientist*, and he worked on several BBC programmes. He was educated at Huish Grammar School, Taunton, and an early book of Boltz's so inspired another Huisher that he went on to become one of the most prolific science writers of the century - he was Arthur C. Clarke. Ben Boltz was born just a year after the inception of the Hampstead Scientific Society, and his last public outing, to the great pleasure of other members, was to the 90th anniversary dinner in December 1989 just a few months before his death.

Today, the brightest star in the Society's firmament, outshining even the inventive Bartrum and the dynamic Hepburn, is one of Britain's best known scientists, Professor Heinz Siegfried Wolff. He has arguably done more than most to promote science and encourage students to take it up as a career. He gave the Christmas Lectures at the Royal Institution in 1975 and has contributed to several television programmes and scientific contests such as the *Young Scientist of the Year* awards, *The Great Egg Race*, and *Great Experiments which Changed the World*. His idea has always been to challenge people to think on their feet rather than regurgitate material learnt by rote.

He first appeared on the Society's stage in 1957, demonstrating a Geiger counter to illustrate Dr Edholm's lecture on the risks of radioactive fallout from nuclear fission. He had won a place at Oxford University in 1945 when he was just 17, but nobly gave it up so that young men who had served in the war could resume their studies. By the time he went to University College, London, he had already worked at the Radcliffe Infirmary where he invented a blood cell counter and at the Pneumoconiosis Research Unit where he invented a dust particle counter able to detect the finest dust

particles in the lungs. By 1954 Heinz was working with Edholm at the National Institute for Medical Research at Holly Hill, Hampstead; in 1958 he was co-opted to the Society's Council and he succeeded Edholm as president in 1968. He took a boyish delight in carrying out scientific demonstrations at some of the conversazioni, especially if he could surprise his audience. His annual lecture - the President's Evening - could be entertaining and unorthodox, but no hint of the subject was leaked in advance. One year it was about designing simple gadgets to make life easier for the elderly and disabled. His wife Joan would often say that he invented things before people knew they needed them. Another year he talked about teddy bears and how we interpret their facial expressions, and when he repeated this talk to children at the Royal Institution the front row was entirely occupied by teddy bears! He sometimes introduced a little drama into his talks. At the Society's diamond jubilee meeting in 1959 members were transported both into the past and the future, and Heinz posed as a spaceman transmitting live pictures of his trip to Mars in 1999. Later, at the Victorian evening in 1988 he dressed up to lecture in the guise of Isambard Kingdom Brunel.

His professional career is impressive. After working for Dr Edholm till 1962, he was successively head of the NIMR Division of Biomedical Engineering at Holly Hill till 1970, and head of the Bioengineering Division of the MRC's Clinical Research Centre at Northwick Park until 1983. He then founded the Brunel Institute for Bioengineering at Brunel University, an independent body funded by contract work for other organisations and with additional contributions from his own media earnings, and he served as its director until 1995, then becoming an emeritus professor. He has also worked for the European Space Agency and the British National Space Centre; he has spent much time and effort with a large number of charities, both in a fundraising capacity and providing practical help. A genial workaholic, he lists his recreations as working, lecturing to children, and dignified practical joking.

Hundreds of players are gone, most of them shadowy figures indeed who challenge the Sherlock Holmes in each of us, but the stage is still lit. Times have changed -- much more entertainment and many other specialist societies are available and there is easy world-wide communication -- but there are still people who wish to learn about science. It is the reason for the Society's continued life.

HAMPSTEAD SCIENTIFIC SOCIETY

PRESIDENTS

1899-1900	Edward Bond MA MP
1901-1902	Sir Richard Temple Bt PC GCSI CIE DCL LLD FRS
1902-1909	Sir Samuel Wilks Bt MD MRCS MRCP LLD FRS
1910-1933	Prof Sir W M Flinders Petrie DCL LLD PhD FRS FBA
1933-1946	Sir Henry Dale OM GBE MA MD FRS
1946-1948	Sir Percival Hartley CBE MC DSc FRS
1948-1951	Edward Hindle MA ScD FRSE FRS
1951-1968	Otto G Edholm BSc MB BS
1968-1987	Prof Heinz S Wolff BSc FIBiol FIEE FBES FRSA
1987	Sir Graham Bull MB FRCP
1988-	Prof Robert Weale BSc MSc MPhil PhD DSc

HONORARY SECRETARIES

1899-1903	Basil W Martin MB ChB FZS MBOU
1903-1907	Clement O Bartrum BSc FRAS
1907-1922	Clement O Bartrum BSc FRAS & RW Wylie MA
1922-1929	Clement O Bartrum BSc FRAS
1929-1931	(vacant)
1931-1941	Mrs C P Park
1941-1945	Mrs Jessie MW Baily DSc
1945-1949	Howard Kelly ARIBA FRAS
1949-1950	D Leston
1950-1951	John D Hillaby FRES FZS
1951-1953	Mrs GCL Griffin
1953-1955	Noel Elliott FRAS
1955-1961	Mrs Joan Elliott
1961-1965	Mrs Elizabeth Atchison
1965-1966	AJ Solman & Mrs McCall
1966-1974	Herbert Stark
1974-1990	Peter R Wallis BSc(Eng) FCGI FIEE FIMA CEng
1990-1998	Jim Brightwell
1998-	Julie Atkinson BSc PhD (general secretary)
	Jim Brightwell (programme secretary)
	Peter R Wallis BSc(Eng) FCGI FIEE FIMA CEng (newsletter editor)

HONORARY TREASURERS

1899-1912	E Compson Crump
1912-1920	Walter Herbage
1920-1929	Percy E Marshall
1929-1939	Clement O Bartrum
1939-1949	GH Baylis
1949-1960	PJ Knight
1960-1985	Alec Benard
1985-1987	Sir Graham Bull
1987-	Peter R Wallis

ASSISTANT SECRETARIES (post intermittently active)

1903-1905	D Colbron Pearse
1922-1927	TS Ling
1927-1937	Harry Pace
1937-1939	Miss L Worthington
1967-1974	Ulrich A Michel

MEMBERSHIP SECRETARIES

1969-1974	Paul Cass
1974-1978	Rory JD Johnston
1978-	Miss Elisabeth I Fischer

BOLTZ LOOKS BACK

THE list of speakers and subjects at Hampstead Scientific Society's conversations and meetings over the past 75 years is in itself a history of 20th-century science—a point which is not lost on **Ben Boltz**, author of a new history of the society.

Seventy-Five Years of Popular History is a record of the society's principal activities from its formation — on July 3, 1899 — to the present day.

Mr Boltz, a science writer who was the BBC's first science correspondent and is a former science editor of the Financial Times, compiled it from the society's own records, reports in the Ham and High and the study of birth certificates and other Somerset House records.

"It was what I would call a normal research project," he told me at his home in Willow Road, Hampstead. "It was hard work and obviously a lot of material had to be left out. My aim was to make it a readable small book."

The part which Mr Boltz most enjoyed writing is that which describes some of the more colourful members, not great names in science but "the hard core of the society."

One such was **Clement Osborn Bartrum**, secretary of the society from 1904 to 1930 and treasurer for another nine years after that. A Bradford-born worsted manufacturer, he studied in the evenings for his BSc degree and became a keen astronomer.

"His major invention," writes Mr Boltz, "was a master-slave clock controlled by a pendulum, in which he used what he called 'negative backlash' but today we would call negative feedback. It had never been done before."

Bartrum's clock is now in the Science Museum.

But the "most colourful and extraordinary of members" was **Patrick Hepburn**, a solicitor and man of "insatiable curiosity and tremendous energy." He was a noted amateur astronomer and in 1911 set up a camp bed in the society's observatory to be ready to observe Mars at the optimum moment.

There is room, too, in the history for the famous — the Egyptologist **Flinanders Petrie**, the society's fourth president; **Sir Henry Dale**, his successor and joint winner of the 1936 Nobel Prize for medicine; **Marie Stopes**, most notable of the women members; and outsiders like **Ernest Shackleton**, **Sir Julian Huxley**, **Sir Mortimer Wheeler** and **Sir Edward Mellanby**, all speakers at the society's popular conversations.

The variety of the society's activities — 450 lectures since the first, on fungi, on December 1, 1899; sections devoted to photography, natural history, radio and astronomy; the only astronomical observatory in Greater London to which the public has access; 65 years of continued meteorological observation from a single spot, superintended by only two people since 1910 — is also catalogued.

And there are other, local, details which Mr Boltz can take full credit for uncovering — like revealing that the naturalist **James E. Whiting**, trained as a horticulturist at country houses and nurseries, earned his living in Hampstead by giving music lessons.

Copies of *Seventy-Five Years of Popular Science* can be obtained from Hampstead Scientific Society's general secretary, **Peter Wallis**, 22 Flask Walk, NW3, 794 9341, for 75p.