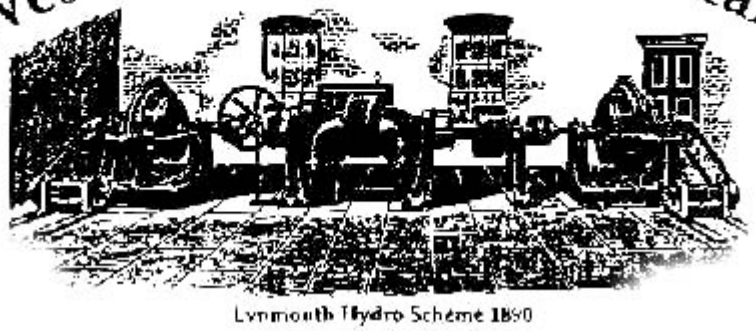
South Western Electricity Historical Society



Lynmouth Hydro Scheme 1890

The following document comes from the
South Western Electricity Historical Society website at
www.swehs.co.uk

This site contains all the necessary contact information you may require.

Do visit the site – you may find more items of interest.

Supplement to HISTELEC NEWS No.8
April 1998

No1 - Edison

by Bill Bryson

Extracted from a book entitled "Made in America"

America has always had an incredible capacity for exploiting new technologies and no one was better at this than Thomas Alva Edison.

Edison was the archetypal American pragmatist. Latin, philosophy and other esoteric pursuits he dismissed as "ninny stuff'. What he wanted were useful inventions that would make life more agreeable for the user and bring untold wealth for himself. With 1,093 patents to his name (though many of these were in fact invented by his employees), Edison has almost as many patents as his nearest rival, Edwin Land (inventor of the Polaroid camera), and no one gave the world a greater range of products that have become central to modern life.

Edison's character was not, to put it charitably, altogether unflawed. He connived against competitors, took personal credit for inventions that were not his, drove his assistants to breaking point (they were as the "Insomnia Squad") and when all else failed did not hesitate to resort to bribery, slipping New Jersey legislators $1,000 each to produce laws favourable to his interests. If not an outright liar, he was certainly often economical with the truth. A popular story. which he did nothing to dispel, was that a width of 35mm was chosen for movie film, because when one of his minions asked how wide the film should be, he crooked a finger and thumb and said, "Oh, about this wide". In fact as Douglas Collins points out, it is far more probable that rather than devise his own film, he used Kodak film, which was not only 70mm wide, but 50 feet long. When cut down the middle, it would conveniently yield feet of 35mm film, curiously the precise dimensions of Edison's first reels of film.

When George Westinghouse's novel and, in retrospect, superior alternating current electrical system began to challenge the direct current system in which Edison had invested much effort and money, Edison produced an eighty-three page booklet entitled "A Warning! From the Edison Electric Light Co., filled with alarming (and possibly fictitious) tales of innocent people, who had been killed by coming into contact with Westinghouse's dangerously unreliable AC cables. To drive home his point, he paid neighbourhood children, twenty-five cents each to bring him stray dogs, then staged an elaborate demonstrations for the press, at which the animals were dampened to improve their conductivity, strapped to tin sheets and slowly dispatched with increasing doses of alternating current.

His boldest and certainly the tackiest public relations exercise was to engineer the world's first electrical execution using his rivals alternating current in the hope of proving once and for all, its inherent dangers. The victim selected for the exercise was one William Kemmler, an inmate at Auburn State Prison, New York, who had got himself into this unfortunate fix by bludgeoning to death his girlfriend. The experiment was not a success. Strapped into an electric chair with his hands immersed in buckets of salt water, Kemmler was subjected to 1,600 volts of AC for fifty seconds. He gasped a great deal, lost consciousness and even began to smoulder a little, but conspicuously he failed to die. Not until a second, more forceful charge was applied did he finally expire. It was a messy, ugly death and wholly undermined Edison's intentions. Alternating current was soon the norm.

America has always had an incredible capacity for exploiting new technologies and no

one was better at this than Thomas Alva Edison.

Of linguistic interest is the small, forgotten argument over what to call the business of depriving a person of his life by means of a severe electrical discharge, Edison always an enthusiast for novel nomenclature, variously suggested "electromort", "dynamort" and "ampermort", before seizing with telling enthusiasm on to "Westinghouse", but none of these caught on. Many newspapers at first, wrote that Kemmler was to be "electrized", but soon changed that to "electrocuted" and before long "electrocution" was a word familiar to everyone, not least to those on "death row".

Edison was a brilliant inventor with a rare gift for coaxing genius from his employees, but where he really excelled was as an organiser of systems. The invention of the light bulb was a wondrous thing, but of not much practical use when no one had a socket to plug it into. Edison and his tireless workers had to design and build the entire system from scratch, from power stations to cheap and reliable switches. In this he left Westinghouse and all other competitors standing.

The first experimental power station was built in two semi-derelict buildings on Pearl Street, Lower Manhattan, New York and when on the 4th September 1882, Edison threw a switch that illuminated, if but faintly, 800 flickering bulbs all over Manhattan South. With incredible speed, electric lighting became the wonder of the age. Within months, Edison had set up no fewer than 334 small electrical plants all over the world. Cannily he put them in places, where they would be sure to achieve maximum impact. On the New York Stock Exchange, in the Palmer House Hotel, Chicago, La Scala Opera House, Milan, the dining-room of the House of Commons in London. All this made Edison and America immensely rich. By 1920 it was estimated that the industries spawned by his inventions and business pursuits - from electric lighting to motion pictures - were worth in aggregate $21.6 billion. No other person did more to make America an economic power.

Edison's other great innovation was the selling up of a laboratory with file express purpose of making technological breakthroughs with commercial potential. Practical science, elsewhere the preserve of academics, had become in America the work of capitalists.

EDITOR'S NOTE

From the UK perspective, Godalming is credited with affording the first public supply of electricity in September 1881, where a small water-wheel was installed on the River Wey driving a small Siemens generator. However this was not a continuous supply being abandoned three years later.

The distinction for the first permanent public supply in Britain is usually given to Brighton where the Hammond Electric Light Company commenced a supply in February 1882, which excluded street lighting, beating Thomas Edison's New York Station by some seven months. Eastbourne also established a public supply in September 1882, which included street lighting.

Taunton always considered that they were the first British supply, when Mr. Massingham commenced a supply there on the 12th December 1885, but it was not continuous until a few months later on the 1st May 1886. This was certainly the first public supply of electricity in the South West. The equipment used at Taunton however was American from the Thompson Houston company, which later merged with Edison to form General Electric. thus British Thompson Houston (BTH) became a subsidiary of GE of America.

Supplement to HISTELEC NEWS No.8
April 1998

No2 - A Visit to Blagdon "B"
April 1998

by M.O.George
[the Board's latest recruit from the(Ginger) Beer Family]
Illustrations by W.T.Weeks

The article below was originally printed in the SWEB Magazine forty five years ago, dated March 1953 Coronation Year edition. We include it now to see how good was Mr.M.O.George in foretelling the future. The illustrations are by Wally Weeks, who was Civil Draughtsman in Bristol at the time, and later became Assistant Chief Draughtsman at Bath. Who was M.O.George? Anyone remember, answers to the editor?

Editor, by means known only to editors, has "persuaded" me to write and tell you of a recent visit to the new atomic power station at Blagdon, the visit being the result of my luck in the ballot for the Board's jubilee celebrations.

Our small party of twelve set off at 8 a.m. from the roof of Electricity House in one of the Board's standard line patrol helicopters, accompanied by the Chief Engineer's Generation Section Head in his own two-seater "Flea", and we touched down in the station car park five minutes later, to be received by Mr. Mountain, the Station Superintendent.

On one side of the car park was a large.office building into which we were conducted by our host, to whom the leader of the party expressed the question which was on everybody's lips: "Where is this power station we have heard so much about, and how much further have we to go?"

The Generating Section Head's 2-seater "Flea."

Mr. Mountain replied that this was a very natural question, as the station itself was invisible from the air or land. "But I can assure you," he added, "that we shall soon be seeing the best of Britain's machinery which, though only started up a month ago, is already supplying two per cent. of the whole of England's demands."

Mr. Mountain then proceeded to give us a brief outline of the history of the two stations, Blagdon "A" and Blagdon "B", commencing from the mining of uranium in the Mendip Hills in 1975, and the opening of the first atomic station in 1988, to the wonders we were to see in the "B" station.

He explained that the ideal site for a super-station was proximity to the fuel supply, a plentiful water supply, massive rock formation for isotope protection of personnel and finally, if possible, proximity to the electrical load-centre to save transmission losses. All these requiremerits were met by the Blagdon site, and it would be really difficult to find anywhere half as good.

Before splitting us up into four groups, each with a separate guide, our host jocularly told

us that we must be prepared for a hot shower before entering the station itself, but hastened to explain that this would prove no embarrassment, as the protecting fluid would be automatically sprayed over our clothes and body as we passed through the first chamber, and that this. was a safety precaution enforced on everybody who entered the station, the skins being easily shed after our visit without causing any difficulties whatsoever.

As one of the most junior of the party I was in the third group, and spent the next ten minutes (there being a fiveminute gap between the start of each group's tour) looking at the photographs and diagrams which lined the otherwise friendly reception-room. One most interesting exhibit was a diagram showing the load growth of our Board since its inception in 1948, and it came as something of a shock to me to realise that when the Board started there was only a little over 300 MW of load. whereas now, a mere 50 years later, the Board's load exceeds 2,000 MW.

Large cylinders, throbbing with energy, line the walls of the 1998 power station.

At last the tea minutes were over and our guide led the three of us from the reception room into the next room which was simply marked "Spray". There we were asked to walk to one end of the room and back, in the process having to step over two hurdles. There was a faint hissing noise and a steamy substance seemed to come out of nozzles in the roof, but by the time we had done as requested we were each covered in a transparent plastic sheath, and passed on through another door marked "Control".

Here we found one engineer seated at a desk on which were numerous telephones and push buttons, and on the wall in front oœ him there was a diagram with a large number of lines connecting small lights of different colours, some flashing and some stationary. Our guide explained the meaning of the various lights and push buttons, but the main impression that remained with me was that this little room was the brain or nerve centre of the whole station.

We then passed out of the room into a corridor which appeared to be lined on both sides with lift doors, twelve on each side. of which two or three were large enough to take the biggest piece of machinery. We walked towards one marked "A" and in a matter of seconds we had descended 100 feet and emerged into what appeared to be a huge ball filled with rows and rows of enamelled structures which, we were told, comprised the switchgear controlling all the energy being sent out from the station as well as the energy used in the station and that supplied to the adjacent mines. I felt that we had at last entered the real station, but was amazed at the cleanliness and the absence of anyone in attendance. We walked through these galleries and then descended a further 100 feet in a "B" lift to what we were told was the generator gallery.

The scene was of six very large cylinders, one after the other, again finished in ivory-coloured enamel, spotlessly clean, but one could feel a very slight throb and knew

instinctively that the large cylinders were alive with energy. A further lift journey brought us to the turbine house, and the scene was not very different from the one we had just left, except that there appeared to be three times the number of cylinders, and the colour scheme was a light grey instead of cream.

I knew from the length of our lift journeys that we must be 300 or 400 feet down and that the steam temperature at the turbine inlets was reputed to be 2,000*F., and yet none of us appeared to feel any discomfort. I asked our guide why this was, and he pointed to a large square box in each corner of the immense gallery and spoke just one word--" Air-conditioners."

By this time our little party had become enthusiastic about the wonders we had seen, but knew that the most important section had yet to be visited. Passing out of the far end of the turbine gallery we noticed what appeared to be a horizontal escalator fitted with a handrail and stools.

On instructions from our guide we each walked on to this moving platform. sat down and were soon whisked along a corridor for about a quarter of a mile, when the movement slowed down to walking pace and we stood opposite another series of lift doors which appeared to have several dials flanked by red and green warning lights.

Our guide explained that these were automatic Geiger counters to ensure that there was no radioactive material accidentally carried in or out of lifts which would drop us another 500ft. past several galleries of steam-raising equipment to the fission control rooms themselves.

The guide's verb "drop" was correct. but we arrived in one whole piece and walked out of the lift across the corridor into a room very similar to the control room at the start of our tour. except that there appeared to be very many more dial instruments and two men instead of one. Our guide apologised for not being able to show us more, but explained that all the energy release was carried out behind thousands of tons of rock. and that nearly all the operations were automatically controlled, including the delivery rate of the raw fuel from the mines half a mile along the range.

We returned by another route and appeared to shoot up in an "F" lift, finding ourselves once more in the reception room waiting for the last group to complete their tour before returning to Bristol in time for lunch, while the Generation "Head" flew on to his old coal stations at Plymouth, Falmouth and Yelland.