

## JOHN H. PEPPER—ANALYST AND RAINMAKER

### The Genesis of Chemistry Teaching in Queensland

[By R. F. Cane, D.Sc., F.R.I.C., F.R.A.C.I., F.I.Chem.E., The  
Queensland Institute of Technology, Brisbane.]

(Read to a General Meeting of the Royal Historical Society of  
Queensland on 28 August 1975.)

There will be only a few who will have heard of Pepper's Ghost and, it's a safe bet that those who have are over the age of fifty. One can also assume that virtually none will know that Mr. Pepper of "The Ghost" fame, or rather "Professor" Pepper as he liked to be called, was a Professor of Chemistry of a British Polytechnic and was the first to teach chemistry in Brisbane.

Pepper was a crusader, dedicated to motivate the enthusiasm of young Englishmen with the technical marvels of the Victorian era. Not only did he give daily lectures on science at the Royal Polytechnic in London's Regent Street but he was willing to demonstrate chemical experiments and science magic to all who visited his laboratories. He was inspired with the spirit of learning and wrote copiously about popular science, the text being primarily addressed to the young Briton. In his introduction to the *Boy's Playbook of Science* he wrote, "Let 'young England' enjoy his manly sports and pastimes but let him not forget the mental race he has to run with the educated of his own and other nations; let him nourish the desire for the application of scientific knowledge, not as a mere school lesson but as a treasure, a useful ally which may some day help him in a greater or lesser degree to fight 'The Battle of Life'."

#### THE FORMATIVE YEARS (1821-1850)

John Henry Pepper was born in Westminster on 17 June 1821, the son of Charles Bailey Pepper, a man of standing in the local community who was a public works contractor. After an early schooling at Loughborough House (Brixton), and the

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Dr. R. F. Cane is head of the Chemistry Department, Queensland Institute of Technology.

King's College School (London), during which he became fascinated with the exploits of the blossoming British science, Pepper extended his knowledge of chemistry by studying under J. T. Cooper at the Russel Institution. Cooper<sup>1</sup> was a chemist of some eminence who helped to invent a special microscope, manufactured scientific apparatus for sale and investigated new chemical compounds. This training enabled Pepper, at the age of 19, to be appointed assistant lecturer in chemistry at the Granger School of Medicine.

In England at that time there was a strong movement to compete with the growing scientific strength of Europe, particularly of Germany. Sir George Cayley, intensely interested in science and engineering, was instrumental in the erection of a Gallery of Arts and Science in London—having space for working models, lecture theatres and laboratories. This exhibition gallery developed into the Royal Polytechnic, the opening of which on 3 August 1838 was the occasion of much celebration.

The main aim of the Polytechnic was to show to the general public by means of exhibitions and models, the advances being made in science, particularly British science. There were steam-driven printing presses, lens-grinding machines, a model dock-yard, a diving bell in a large tank into which visitors (for 6d) descended below the water, and a variety of different machines, while on the lower floor, there was a working chemical laboratory. In addition to the technological museum, lectures on popular science were provided, as well as some training in "natural philosophy" and chemistry.

As he was working in London, Pepper frequented the Polytechnic and in 1847, he gave his first lecture there. In the meantime, his interest in chemistry had increased, and at the early age of 22, he was elected a Fellow of the Chemical Society of London.

In the following year (1848), Pepper was appointed Lecturer and Analytical Chemist at the Royal Polytechnic; an association with that institution which lasted over 20 years. Pepper worked in the chemistry laboratories giving demonstrations, indulging in some chemical "magic" and delivering lectures. By invitation he also lectured at the best English schools (Eton, Haylebury, Harrow and Cheam) at which he intrigued and delighted his young audiences by displays of chemical tricks and magic, intermixed with solid science of real educational merit. Pepper appears to have had a particular flair for what is now called "Youth Lectures"; there is no doubt that his extrovert personality always attracted large audiences. Indeed, the famous Quintin Hogg writing to his mother from Eton stated "Pepper

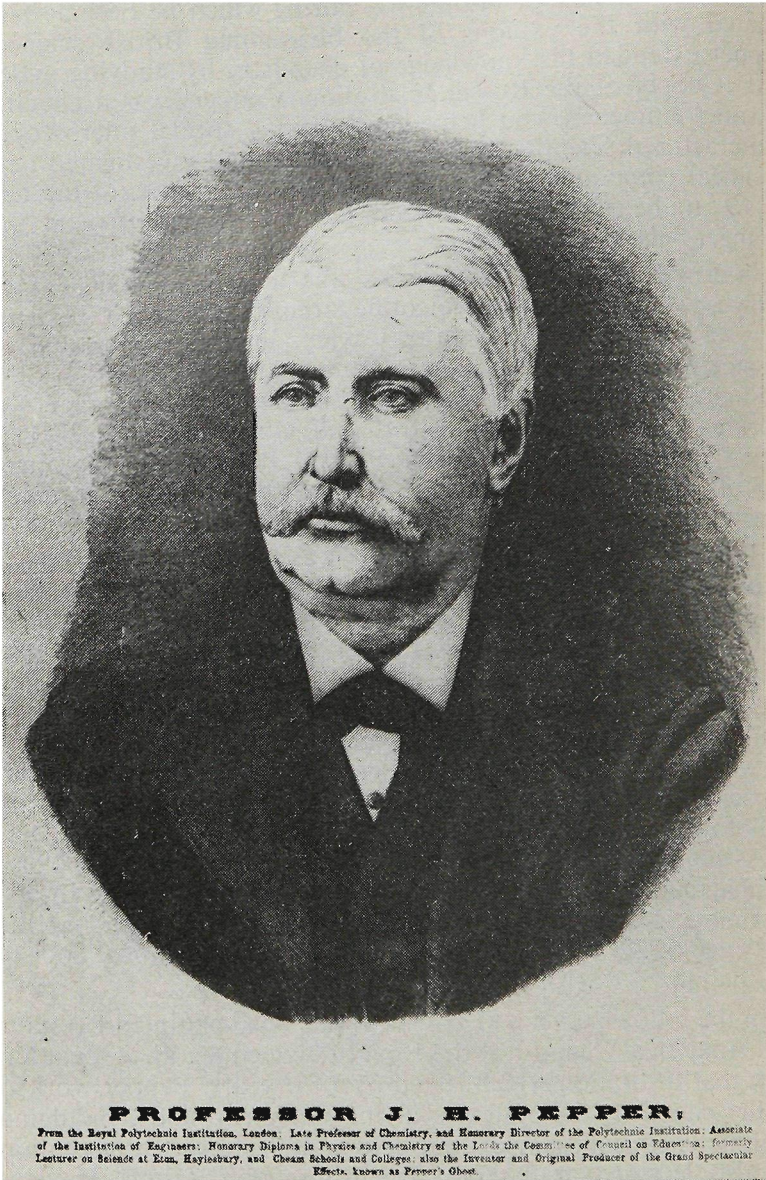


Fig. 1. — "Professor" Pepper of the Royal Polytechnic.

the Polytechnic lecturer, is giving a weekly course of lectures down here, and I attend them, and I am going to try for the School prize, though it is an awful sap. There are five lectures and ten questions for every lecture . . . The lectures are on

electricity and he has every sort of apparatus on an enormous scale."² Pepper's flair for the theatrical, backed by increasing public interest in his lectures, gained the attention of the Governors of the Polytechnic and, in 1852, he was made "Honorary Director and Professor". It was also the year in which he gave his only formal lecture to a learned society, the paper, "A new Test for Strychnine" was presented to the Chemical Society on 17 May, but never published.

1852 is also important as the first time which Pepper became associated with Australia. He gave a lecture in London entitled "The Australian Gold Fields and the Best Means of Discriminating Gold from all other Metals". This lecture was later published as a small book.<sup>3</sup> In this book he stated that "he recently had the pleasure of conversing with an officer in charge of the Australian convicts". The outcome of this conversation was Pepper's exhortation, "Surely with our overgrown population, the good time has come at last . . . let the industrious poor emigrate and reap the just reward of their labour". In order that the poor could better recover their just reward in the colonies, Pepper suggested they should not leave England without purchasing tents, collapsible carts and gold-washing machines. The book contained advertisements of such machines "of best class" at £3-10-0 constructed "as yet to leave each machine available as a sea chest", collapsible carts folding up like packing cases for 8/- and large emigrant tents with sleeping lofts for £8-10-0 each, a six foot high wire fence all around was provided for 16/- extra. As the book sold for only 6d, there seems no doubt that the many advertisements provided a reasonable return to the author. His chemical knowledge led him to suggest that emigrants can distinguish gold from base metals by heating samples, or by dissolving them in nitric acid. He also suggested that gold can be separated by amalgamation and boiling off the mercury on an iron shovel (a process hardly conducive to good health!—R.F.C.).

### LONDON (1850-1878)

The years between 1850 and 1870 must have been very full ones for John Pepper; he wrote no less than 11 books of popular science. These enjoyed considerable sales, were reprinted in America and even became prescribed school texts in Pennsylvania and Brooklyn. Sir Robert Hadfield was so impressed that he purchased a large number of copies and gave them to Sheffield schools "with the object of encouraging boys to make experiments rather than to acquire knowledge merely by the reading of books". Perhaps Pepper's best-known books are *The Boy's Playbook of Science* (1860), and *The Playbook of*

*Minerals* (1861). These were preceded by a contribution to *Peterson's Familiar Science* (1851) and many others.

During these years not only was his output of printed science prodigious but, additionally, he lectured and gave exhibitions almost daily on a variety of topics. Electricity and light fascinated him. At one "show" he cooked pieces of meat across the main hall of the Polytechnic by having two parabolic mirrors, with a charcoal fire at the focus of one of them and a chop at the focus of the other. During the wedding festivities of Albert, Prince of Wales, in 1863, he arranged a splendid illumination of Trafalgar Square and St. Paul's Cathedral with a special form of arc light. Of course, his main claim to fame was "Pepper's Ghost" shown for the first time on Christmas Eve, 1862, illustrating a scene from Dicken's *Haunted Man*.

The optical illusion of "The Ghost" took London by surprise, was an enormous success and, to a certain extent, was a means of restoring the flagging finances of the Polytechnic. "Pepper's Ghost" was given a Royal performance at Windsor, visited more than once by the Royal family (The Prince of Wales took his bride to see it the week after their marriage), and shown on the stage in London, Paris, New York, and elsewhere. Unfortunately, the proprietary status of the spectra was marred by a fierce controversy over who had actually invented the device, Pepper or a man called Dircks. Pepper claimed that he had thought up the idea on reading Robinson's *Recreative Memoirs*, of 1831, whereas Dirck claimed he had publicised the information before the British Association in 1858, based on his patent of 1838. Because of the lucrative success of the apparition, claims to the ownership of the idea waxed furious. Dircks published a book<sup>4</sup>, *The Ghost as produced in the Spectra Drama*, in which he described how he originated the scheme and how Pepper came to produce it. Nothing daunted, Pepper produced a series of articles claiming his ownership of the main idea.<sup>5</sup> The outcome was a costly action by Dircks against Pepper in the Chancery Court before Lord Westbury, witnesses for Pepper were Sir David Brewster and Sir Charles Wheatstone; two very eminent British scientists. The Lord Chancellor delivered his verdict in Pepper's favour but, even at the end of that decade, the argument was still raging.<sup>6</sup> The controversy certainly brought Pepper's name before all of London's reading public.

Electricity was another of Pepper's interests. He was largely responsible for a banquet at the Polytechnic on 21 December 1867 at which the Duke of Wellington "with many noblemen and scientific gentlemen in attendance" sent, by electric wire, a goodwill message to President Johnson of the United States.

Pepper arranged the technicalities and, in person, brought the wires and telegraph keys to the seated personages. The message took  $9\frac{1}{2}$  minutes from London to Washington and a reply was received in 29 minutes. On both sides of the Atlantic<sup>7</sup> the event was hailed as a notable achievement for science.

Because of his increasing public activities and outspoken comment, towards the end of 1871, relations between Pepper and the directors of the Polytechnic became so strained that *The Times*, of London, printed an expression of hope that the difference between the flamboyant Pepper and the directors "may yet be adjusted on a satisfactory basis".<sup>8</sup> The main area of contention was the authority of the Board of the Polytechnic in relation to Pepper's autonomy. Apparently the negotiations were not successful for, in March 1872, he left the Polytechnic and transferred his exhibits elsewhere. In 1875 his name was removed from the Fellows list of the Chemical Society and a few years later he left England.

After severing connection with the academic world, Pepper entered wholeheartedly into the world of showmanship and the theatre. He had a successful tour of America and arrived in Australia in 1879.

### VICTORIA AND NEW SOUTH WALES (1879-1880)

John Pepper, his wife (Mary Ann, aged 48) and son (H.W., aged 23) arrived in Melbourne on 8 July 1879 on board the *Lusitania* (3,825 tons) and, although he was listed as "of no occupation", three days later a Grand Reception was given to him in the Athenaeum Hall.<sup>9</sup> At the reception the Government Analyst announced that Pepper had come out at the invitation of a score of gentlemen anxious to hear more about science and who had formed a lecture association. (This statement is unlikely to have been true—R.F.C.) His arrival "was an event that was hailed with much satisfaction by all classes of our colonial community . . . Wonderful optical illusions, he invented and brought out 'The Ghost', the metempsychosis, the magic limner, wonderful dissolving views, and scenes by the oxyhydrogen microscope".<sup>10</sup>

Pepper gave his first lecture at St. George's Hall on 12 July 1879 and the *Age* (14.7.79) wrote of his appearance as "The Event of the Season". The *Argus* (14.7.79) related that "he had been delighting audiences with his lucid explanation" and "It was one of the best scientific exhibitions that a Melbourne audience had seen. . . . The ease, unaffected and pleasant manner of Pepper's exposition of scientific facts contained, in themselves, the promises of many future successes". Nevertheless after a



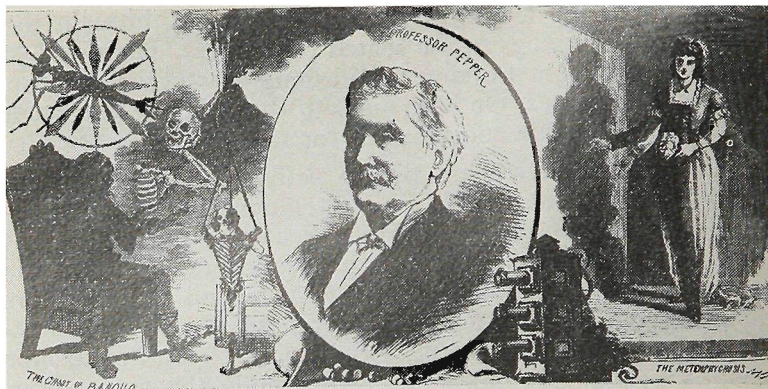


Fig. 2. — J. H. Pepper in Melbourne (Ref. 10).

“The Ghost” and scenes by means of the oxyhydrogen lamp, his attractions seemed to have lost their interest and his final performance on Saturday 3 August was given scant attention by the local Press.

Pepper then moved to Sydney and put on a series of somewhat grander performances at the School of Arts between September and the end of 1879. At his first performance, he was greeted by “a tremendous and enthusiastic audience who expressed delight and amazement at the novel and beautiful entertainment”.<sup>11</sup>

The performances were much the same as those in Melbourne — dancing skeletons, appearing and disappearing ghosts and apparitions, a variety of optical illusions and chemical magic. Pepper was described in the Press as “one of the scientific giants of the present age” and “the large audience is flattering to the professor’s feelings and to the development of science in the antipodes”.<sup>12</sup> His optical illusions included turning a dog into a string of sausages, a bowl of oranges into tins of marmalade and causing flowers to grow from an empty pot. A critique stated, “It is hardly possible to imagine an entertainment more taking or more interesting and, at the same time, so full of really useful information as that given by Professor Pepper”.<sup>13</sup>

His reenactment of the ghost of the murdered ex-convict Frederick Fisher had the same awesome effect on Sydney audiences as the original “Ghost” in London. Nevertheless, after about a month his audience began to fall off and the *Herald* of October 1879 reported only “a tolerably good audience to the new programme”. Pepper’s run of the spectacular finished in Sydney on 4 November 1879, after 41 performances.

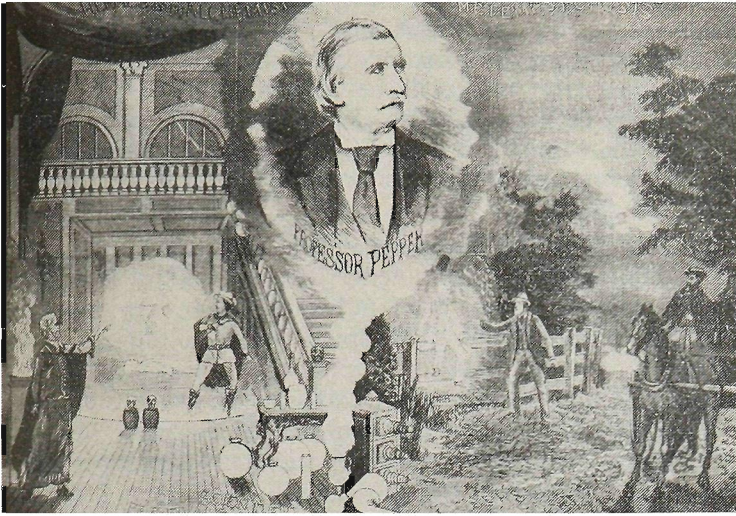


Fig. 3. — J. H. Pepper in Sydney.  
*Illustrated Sydney News*, 29.11.79.

Undaunted by only mediocre interest towards the end of his season, Pepper, on the following week, appeared at the Victoria Theatre in Sydney as playwright, producer and actor in the romantic drama *Hermes and the Alchymist*, the latter who could make diamonds and the former possessing the elixir of life. It was not a success—a critique stated that, “It is certainly an original drama, for nothing like it has ever been put on the Victorian stage before . . . act after act finished amid profound silence . . . or else with the accompaniment of a hiss”.<sup>14</sup> It played for a few weeks then was followed by a humorous sketch entitled *The Red Lion Inn* or *The Missing Ghosts*. Towards the end of November, Pepper announced that he was ready to deliver a series of daytime lectures if there were enough subscriptions at 1 guinea for six lectures. He finished his Sydney season on 12 December 1879 and then visited Bathurst, Orange, Goulburn<sup>15</sup> and other country towns during the New Year, 1880. He then went on to Tasmania.<sup>16</sup> A few months later, in April 1880, Pepper was back again in Melbourne<sup>17</sup> starting a series of secular sermons on astronomy at St. George’s Hall, prior to departing to London where he engaged some staff and returned to Australia.

### SOUTH AUSTRALIA (1880-1881)

Both *The South Australian Register*<sup>18</sup> and *The South Australian Advertiser*<sup>18</sup> carried prominent announcements of a series



of scientific lectures to be given by Pepper at the Academy of Music commencing on 30 August. In addition, Pepper was advertised as "from the Royal Polytechnic" and his "wonderful interesting experiments" will be shown "under the auspices of the leading citizens of Adelaide". A further announcement<sup>18</sup> stated that the Minister of Education had made special arrangements for Pepper to deliver a course of lectures to school pupils and their teachers.

Pepper and his entourage arrived in Adelaide on 28 August 1880 and considerable prominence was given to his first lecture at which the Governor, his family and suite were present; a description of the evening occupied nearly a full column of the Press.<sup>19</sup> For the whole of September daily advertisements, letters and reports maintained a lively public interest. The style of some reports leads one to surmise that the more laudatory might in fact, have been written by members of Pepper's staff. (The writer of this paper has counted no less than 210 newspaper advertisements during Pepper's South Australian season!)

In addition to lectures to school children, Pepper put on a "Grand Scientific Military Festival"<sup>20</sup> which, in turn, received a very good press. The situation was very promising when Pepper announced that his final lecture (in the first series) would be given on 11 September, as he was going up-country on tour. During the ensuing fortnight, he visited Kapunda, Gawler and Wallaroo.

Pepper returned to Adelaide in October to start his theatrical entertainments; he had already made a considerable impression on Adelaide audiences by his scientific lectures. His performances were given in Garner's Theatre<sup>21</sup> and were similar to those given previously in Melbourne and Sydney. The smooth running of "the show" was interrupted by a Supreme Court action by an ex-employee, who stated that Pepper had engaged him in London under contract for 14 months but refused to pay his wages. Pepper claimed that the man (John Saunders) was not entitled to wages as he "was persistently disobedient and insubordinate and had misconducted himself".<sup>22</sup> Pepper was, no doubt, affronted by the whole affair, particularly as Saunders had caused Pepper to be openly arrested prior to the case and he had to be "bailed out". Nevertheless, Pepper lost the case and was required to pay, with costs.

Pepper was again lecturing in November, under the auspices of the Education Department, giving benefit entertainments for the Glenelg Institute and the City Mission,<sup>23</sup> followed by a further country tour and a second series of theatricals at Garner's Theatre. On New Year's Day 1881, the *South Australian Register* carried a leading article, "Royal Polytechnic for Ade-

laide" in which it was stated that Professor Pepper had proposed the establishment of an exhibition gallery and polytechnic similar to that in London and that, further, Pepper, "if encouraged", would be willing to provide lectures and exhibits. His theatre performances ceased during the first week in January ostensibly because of poor audiences, caused by hot weather. However, it also corresponded with a further court appearance by Pepper<sup>24</sup> for not paying the wages of his staff. The proceedings were enlivened by Pepper arguing with the plaintiff's counsel and Pepper's being accused of stealing (and opening) another person's letter. The case was dismissed because it was shown that the plaintiff was planning "to set up a rival show".<sup>25</sup>

Pepper's shows were again on stage in May 1881, this time under the auspices of the Chamber of Manufacturers.<sup>26</sup> The subscription lectures on "Light", "Heat", and "Electricity", were especially aimed at the working classes but, in spite of lurid advertisements plus demonstrations of the loud speaking telephone and phonograph, attendances were not good and his final Adelaide lecture was given on 2 June, 1881. He then departed for Brisbane.

### BRISBANE (1881-1889)

In mid-July *The Telegraph*<sup>27</sup> stated that Professor Pepper would be appearing for a short season at the Theatre Royal starting on July 23. As usual his appearance was heralded by daily extravagant advertisements and press notes. On his opening day *The Telegraph* stated that "This celebrity" will "not present the mere dry bones of science but clothes it in so fascinating garb that his patrons cannot fail to be delighted".<sup>28</sup> Unfortunately, at this time, Brisbane people had to choose between Professor Pepper and the marvels of science and Professor Anderson, "The Great Wizard of the North", with his "World of Magic". The latter, as well as beheading ladies and turning boys into pumps, cajoled his audiences with handsome gifts of "suites of furniture, horses, coffee sets and gold watches".<sup>29</sup>

By the end of the following week, competition between the two professors resulted in each displaying expensive half column advertisements, Anderson giving away pianos, horses and silver tea services, while Pepper, under the patronage of the Governor, the Chief Justice and the Mayor, was "plunging his hands into boiling water and red-hot lead". He maintained his interest in the scientific education of the young and schools were invited to his lectures.

After visits to Toowoomba and other towns in the Downs,<sup>30</sup> Pepper returned to Brisbane and late in August gave a series of lectures on astronomy. These were given at the Presbyterian College Divinity Hall in Creek Street. At the same time he was presenting repeat lectures in the new Minores Hall in Morwitch's Buildings in Queen Street. The church lectures dealt with the structure of the solar system illustrated by slides of earth, planets and solar eclipses, whereas the "Course of Science Festivals"<sup>31</sup> in Morwitch's Buildings were the "old faithfuls" of lights, optics, electricity and heat; at one guinea for the series.

In September, Pepper reverted to science magic with demonstrations of "The Ghost" and other illusions, prior to a further country tour and a return to Brisbane in the New Year with two more subscription lecture series. Pepper was undecided whether to remain in Brisbane and advertisements said that soon "The Ghost" will vanish forever.<sup>32</sup> He then made two country tours visiting Toowoomba, Ipswich and other places. The Ipswich tour was such a success that he again was giving subscription lectures in Brisbane in the New Year of 1882,<sup>33</sup> and demonstrating the electric light at the Queensland National Association exhibition.<sup>34</sup>

In the summer of 1882, south-east Queensland was suffering from a prolonged dry period and Brisbane was subject to "terrible heat". Towards the end of January, an announcement was made that Professor Pepper was going to draw rain from the clouds by means of a gigantic kite.<sup>35</sup> Front page advertisements appeared in *The Brisbane Courier* announcing "Tapping the Clouds" together with explosions of dynamite and gunpowder and discharge of cannon. Subsequent advertisements stated—<sup>36</sup>

## "TAPPING THE CLOUDS

or

## RAINMAKING

And several interesting Illustrations of Atmospheric Phenomena

### POWERFUL ROCKETS

### CAPTIVE AIR BALLOONS

To conduct electricity to or from the Clouds

### THREE ENORMOUS KITES"

The newspapers noted that Pepper had started experimenting with a 20ft. kite at Eagle Farm race course. Unfortunately, even

with six men to control the system, it was too unwieldy and had to be reduced in size. Pepper had been given, or lent, nearly three miles of steel wire, ten swivel guns, some powerful rockets from the H.M.S. *Cormorant*, much rope, a land mine, and nearly a hundred-weight of gunpowder. A footnote to his advertisement stated that "every care will be taken for the safety of the audience". In addition, Pepper had suggested a large bonfire arranged to produce much smoke to enhance the prospects of rain production, the concept did indeed have some scientific basis. Pepper proposed, by means of the kite, to raise a land mine to cloud level. An electrical path was then provided from the kite to earth by means of the steel wire and he was to attempt to explode the mine in mid-air. He was going "to alter the electrical conditions of the clouds" and provide nucleation in the aftermath of the explosion. The black smoke would provide further "seeding".

By the eventful day (4.8.82), the Brisbane public had reached a great pitch of excitement by the Press articles and lurid advertisements. Almost 700 people arrived at Eagle Farm and paid their entrance fee.

The cannons were fired, the dynamite charges were exploded, two of the rockets had dangerous horizontal flights, one over the fence which exploded outside the arena and the other just missing the crowd on the other side. Although many attempts were made, the scientific kite never left the ground, accompanied by hoots from the crowd. Eventually members of the audience attempted to fly the device but without success. The ill-humour of the crowd was diverted by other performances and the whole affair dissolved into a general fiesta. One of Pepper's assistants gives a first hand account.<sup>40</sup>

"The Professor had the kite constructed so that it could be easily conveyed through the bush. It was much too heavy even for two smart horses and we could not get the kite to rise higher than 30 or 40 yards. This part of the experiment was last given up as a failure.

The whole of the guns were loaded; then the course was cleared, and after firing the mine containing the dynamite, I fired the guns in rapid succession. When I fired the tenth gun I was astonished to see the gun disappear, and to hear a few seconds afterwards a crash on the roof of the grandstand about 300 yards away. The gun had simply burst and blown to pieces. Later on I discovered the cause of this. We had left some spare powder in charge of a man; this man had gone away somewhere, and during his absence some of the youngsters had got hold of the powder, and filled the gun right up to the

muzzle. They did this while I was busy with the mine. Considering that I was standing within a foot of the gun, which was surrounded by a crowd of people, and that the gun literally blew to pieces, it was marvellous that not one of us received a scratch. That was our first and last trial at tapping the clouds for rain."

Pepper wrote<sup>37</sup> and explained that, by using steel for the framework he had erred in making it too heavy. After announcing that he was raising a subscription list for 50 guineas to continue the work with bamboo frameworks, nothing further was ever reported. Ironically, rain poured down during the following week and parts of Brisbane were badly flooded. The failure of the demonstration was the basis of considerable jibing, including much punning on the word "pepper".<sup>38</sup>

Nothing daunted, soon after Pepper was again providing subscription lectures at the Albert Hall and giving demonstrations "of a wonderful invention called the gramophone".<sup>39</sup> At the third lecture the *Courier* reported,<sup>41</sup> "the audience was not numerous and the lecturer was late". On the subject of "Gold and the future Prosperity of Queensland", there was vociferous disagreement between Pepper and some of the audience. The lecture was not completed.

Nevertheless, on the following week, *The Courier*<sup>42</sup> carried an announcement that Pepper, under the auspices of the Queensland Board of Education was giving evening courses in elementary science at various schools. These were to be given on regular days each week at Toowong, Petrie Terrace, South Brisbane, West End, Sandgate, and elsewhere. There was more than one course, each costing 10/- for six lectures. This was nearly a century ago and travelling between suburbs on a regular schedule at night every working day of the week was quite a feat for a man of 61. Lectures were well attended, the series sponsored by the South Brisbane Mechanics Institute was a notable success and the Head Master of the Leichhardt Street School suggested that Pepper should write a science primer for use, and this he did.<sup>43</sup>

It was at a crowded Leichhardt Street School meeting on 29 April 1882 that Pepper announced that he intended forming classes to teach chemistry and these were to be held at his laboratory at 206 Queen Street. Next week there appeared a Press announcement<sup>44</sup> that Professor Pepper's laboratory was open for morning and evening classes for teaching practical chemistry, performing analyses and experimentation. This was, I believe, the first formal teaching of chemistry in Queensland and marks an important date in the education history of this State.



**P**ROFESSOR PEPPER'S  
LABORATORY,  
206 QUEEN-STREET, BRISBANE,  
IS NOW OPEN.

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MORNING AND EVENING SCIENCE CLASSES,  
for Teaching  
PRACTICAL CHEMISTRY  
and the  
PHYSICAL SCIENCES,  
are being formed for Ladies and Gentlemen.

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ANALYSES performed, and Advice given and  
Experiments made for the improvement of  
Manufactures, and also for intending Patentees.  
Open 10 to 1, and 7 to 9 p.m. 5682

Fig. 4. — The first Teaching of Chemistry in Queensland (Ref. 44).

Some of his classes must have been lively ones. In May, the Headmaster of Kangaroo Point School wrote to the Under-Secretary of Public Instruction about disorderly conduct during Pepper's classes. When the Headmaster remonstrated about broken windows he "was informed in very forcible terms, 'They would heave a rock at me' if I interfered. Professor Pepper's assistants do not think it part of their duty to keep order".<sup>45</sup>

By the beginning of 1883, Pepper had given up "the world of entertainment" and concerned himself with science education. About that time the Brisbane School of Arts in Ann St., had decided to diversify its teaching to include carpentry, chemistry and other practical arts. The chemistry classes were to be "under the directorship of Professor Pepper and his son".

Although the initial years were successful, by 1885 attendances had decreased so much that the half-yearly meeting of the Council of the School of Arts decided that "as no advantage was taken by the general public of the chemistry class, the committee have discontinued it until better support is afforded".<sup>46</sup> This action brought an angry response from Pepper that, as he had paid £35 for chemicals, he must be doing something. Furthermore the Governor, his two sons and secretary had already attended the course and this should indicate



Fig. 5. — The Brisbane School of Arts, as purchased in 1873.

its standing and, in addition, he didn't see how it could be called a technical college unless there was a chemistry course—a real peppery reply.<sup>47</sup> The Committee retorted that they had in mind payment by results according to the number of pupils and he had better go out and collect some, as none had attended during the last quarter. This is exactly what he did and received enrolments from 35 pupils, increased later by apprentices from two Brisbane foundries.<sup>48</sup>

Nevertheless by mid-1885, there was growing tension between the Governing Committee of the School of Arts and

Pepper; a situation much akin to the previous one at the London Polytechnic. Pepper was an extrovert who didn't take kindly to authoritarian rule. After an exchange of letters, because he had suspended lectures for a fortnight while he was in Rockhampton, a resolution of the General Committee in August 1885 informed Pepper that "no room will be available after the current quarter for your classes or apparatus, and that no pupils can now be enrolled".<sup>49</sup> Although he continued with private pupils at 118 Edward St., his association with that section of the School of Arts, which was to become the new Technical College, in a few years, did not continue.

By now, Pepper was 65 and showing the effects of a strenuous career. He continued teaching, doing analytical chemistry and some consulting work at 118 Edward St. He is recorded as being Vice-President of the Queensland Photographic Society<sup>50</sup> and as teaching chemistry in connection with the Pharmacy Board.

Since 1883, Pepper had been leasing a farm of 30 acres (Clark's Farm) at Enoggera with option to purchase. His lease stipulated that the owner (Mr. Widdop)—was permitted to prospect for gold on the property with the proviso that Pepper could buy the farm when Widdop ceased operations.

In 1887 Widdop did, in fact, stop searching but, in the interim, had mortgaged the property although Pepper had built his home on it. A Supreme Court action ensued<sup>51</sup> with Pepper as plaintiff. The legal case was enlivened by the fact that Widdop and his associates were fervent spiritualists. In evidence they said, "If gold were found, portion of the profits of the mine were to be given to the angels". A Messianic child, born to a woman of 60, was to indicate the exact place of the gold and defendants' witness had information from the dead—Pepper won the case.<sup>52</sup>

While this situation was developing Pepper was again giving lectures in the city,<sup>53</sup> this time on astronomy to the Free-thought Association. This also must have been a lively gathering because each time he mentioned any form of God's name, a particular sect of freethinkers in the audience "paid their usual compliment by imitating a lot of geese".

By 1888 Pepper was doing a little analytical chemistry at his new address at 69 Queen Street as well as pottering about his farm at Woodland St., Ashgrove.<sup>54</sup> This apparently did not provide satisfaction because, in the next year, he returned to England and again tried to attract public interest in "Pepper's Ghost". However, the attention of England's sophisticated public no longer was held by reflected images and the revival was unsuccessful. Henry Pepper retired to Leytonstone in

Essex and, as a final “fling” in 1890, he wrote *The True History of Pepper's Ghost*.

Pepper died in Colworth Road, Leytonstone on 29 March 1900. In his obituary *The Times*<sup>55</sup> pointed out Pepper's great contribution as a populariser of every branch of science and how he was the founder of evening classes at London's Royal Polytechnic.

### ENVOI

If there is to be an epilogue to this biography one could refer to Brisbane's *Courier-Mail* of August 1974 in which it is reported that 700 guns and 4,000 rockets have been set up on China's north-west frontier. Why? To precipitate storm clouds by shooting into them. The clouds are really going to be “peppered”—one might say.

### ACKNOWLEDGEMENT

The writer acknowledges the assistance provided by:  
 John Oxley Library—State Library, Queensland.  
 Queensland State Archives.  
 The State Library of Victoria.  
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 The Archives Office of Tasmania.

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