Airplane. Key 18920 Michelin Bombarding, Exc. $6
2. Airplane. Key 1919 Observation biplanes, Exc. $4
3. Anthony. 7134, Pacific RR Devil's Gate Bridge, Exc. $4
4. Bennett. Exc. $4ea: 14, 120, 141, 184, 282, 402, 450
5. Bennett. Cab size 1025 CW cannon, Dells, Exc. $4
8. Boxed Set. Dr. Wells Selection of Stereoscopic Charts. American Optical Co 68 of 71 + instructions, interest graduated stereo separations, printed. $16
9. Boxed Set. Egypt, U&W 100 set, Exc. $65
10. Boxed Set. England, U&W 100 set, Exc. $100
11. Boxed Set. Italy, U&W 100 set, with bookmark, Exc. $75
12. Boxed Set. Palestine, Key 30 subset #1-30, Exc. $15
13. Boxed Set. Skin Disease, Dr. Rainforth 127 printed lg. cab size in color, Acme-Zonot, apparently lacks #1-28 Exc; in original (ratty) box with soiled viewer: hastily horrid sickness disgust. $45
14. Boxed Set. Switzerland, U&W 100 set, Exc. $85
15. Calif. Soule 1093 stamp housebutt Big Tree Exc. $4
16. Centennial. 146 Corliss Engine, cab size, nice, Exc $5
17. Civil War. Anthony 2714 RR depot, round house, shops, Atlanta. Trace of tax stamp, Good+. $12
18. Civil War. Taylor-Huntington 6175 dead Confed. in trench 2 April 1865, 2 rifles, Exc. $12
19. Civil War. War Photo Co 6717 ruins Potter House on rebel lines in Atlanta, Exc. $10
20. Clock. The 8th Wonder or Engle Clock. About 9x12" with elaborated carved figures etc. with its blind maker, Capt. Reid, 1878. Lardmor photo cab size Exc. $8
21. Deadwood. 2 cab size by Manville: Gayville, Deadwood Gulch & Pents around Deadwood. It glue streaks 0 $8
22. Disaster. Boston Fire. 4 cab size by Moulton Exc. $12
24. Disaster. as above #3 Clark St bridge, VG $8
25. Disaster. Johnstown Flood. 3 cab size by Webster & Allbee 3033 salmon, 1037 Sisters Charity Bldg 1041 ruins. VO-Exc $9
27. Disaster. Kansas City Flood. U&W house torn VG $5
28. Disaster. Mill River Flood. 3 cab size by Knowlton Bro. 16, 52, 57. Nice, Exc. $4.5
29. Disaster. Omaha tornado 1913, Key 17359, Exc- $7.5
30. Disaster. St. Louis tornado 1896 Kilburn 11300 VG $5
33. Famous. Luther Burbank. Key 16746, Exc. $4
34. Famous. Ida Lewis, Newport, RI heroine of Lime Rock light house rescued 11 men, 1870's unusual $10
35. Frith. Neg #438 Nazareth, VG, grey mount $4
36. Gurney. The White Faen, actress, 1868, Exc. $4
37. Gurney. 78: The Indians in front studio, armed, photo VG, cab size mount rubbed on 1/3 surface, not affect photos, amazing combination: Studio-Indians $60
38. Haynes. Moorhead, Minn. 71 Steamers Dakota on Red River at Moorhead broadside sternwheeler loaded with wood cab size, rare subject, VG. $25
39. Haynes. Fargo DT. 76 harrowing, Grandin Farm shows line 50+ horses lined to till prairie, dramatic Exc $6
40. Haynes. Fargo DT. 704 Mandan Flood good cab size view 188 tracks damaged with lg. blocks floods ice, Exc $12
41. Iron. Interior Lebanon Furnace, Penn. nice view clearly shows collecting trough at base with slots for solid iron. 1870's VG. $8
42. Indian. Woodward 1904. Interior Mo-Sheng-an-Avah pueblo good overview, fine photo, Exc. $8
43. Jackson. 116 Larimer St instant. Denver cab size VO+420
44. Jackson. 3169 Dome Rock Boulder Canon, cab size VG.
45. London Stereo Co. Ice Cavern White Mtns. beautiful toned early view, Exc. $10
46. London Stereo Co. Pilot Mountain Clove, Catskills, VG $6
47. London Stereo Co. Wissahickon key 4952 Exc
48. Hughbridge. 1433 Yosemite study, cab size Helios Exc $15
49. New Mexico. H. Brown 19 Mexican residence cab size $4
51. Pres. Harding. paddle presentation, Alaska, Key 18528 $8
52. Pres. Harding. leaving St Michael cathedral Sitka Alaska distant Key 18954 scarce, Exc. $6
53. Pres. Roosevelt. signing bill Key 11914 Exc. $3.5
54. Pres. Roosevelt. signing bill U&W 4952 Exc $4
55. Pres. McKinley. seated close U&W, Exc. $3
56. Pres. McKinley. standing full length U&W Exc $3
57. Rogers Group. The Charity Patient, Exc. $4
58. Set. HC White, 1902. Marriage #1-10 complete Exc. $10
This issue was delayed in preparation and mailing because just as we were going to press we were closing negotiations with the Canton Art Institute for our first independent show. Yes, this year the N.S.A. will hold its own photographica show on August 27-28 in Canton, Ohio.

Canton is located in north-eastern Ohio, about 17 miles south of Akron, or about 45 miles south of Cleveland. It is convenient to Interstate highways 77, 76, 80 and 71. The Canton Art Institute is housed in the Cultural Arts Center, a multi-unit mall-type building. The trade show will be in the Great Court which is a large mall with room for over 100 dealer tables. The Art Institute have set aside a gallery just off the mall for the exhibit of our competitive displays. Also off the mall is a recital hall where we will have visual programs, our annual meeting and the Spotlight Auction sale. Details on the auction appear elsewhere in this issue. We will give full details on the show in the July-August issue. It is important that we assemble the Spotlight Auction items by the first week in June as we would like to mail the auction catalogue with the July-August issue. Items are beginning to be consigned including a stereo view of Abraham Lincoln, a one-of-a-kind working proto-type stereo camera which was developed by Keystone View Co. in the 1920s. Also to be sold is the original Keystone banner which was used at sales meetings and trade shows. Both of these items were exhibited at the Chicago Show last year. Just arrived is the last available modern daguerreotype taken by Marvin Kreisman of the St. Louis Gateway Arch. This is # 5 of a series of seven.

In conjunction with our show, the Canton Art Institute will open on Aug. 27 an exhibit of the stereoscopic works of Connie Hitzeroth. This exhibit will be on display in their photography salon during the show and through the month of September.

The N.S.A.-CANTON Photo Show '77 is projected to be the largest photographica show of this year. Full details with reservation forms plus a report on accommodations will appear in the next issue.

We are receiving considerable flack from members who did not appear in the new Membership Directory. Mainly the problem is that the text was prepared last August by the Managing Editor. A total lack of available extra time caused its delay to printing in January. We have added over one hundred members since last August, therefore we plan to print a supplement which will bring the directory up-to-date.

Apparently there are members who still do not know where the deadline date for the next issue appears in each STEREO WORLD. It appears at the end of the column, EDITORIAL, which always appears on page 2. This is an absolute deadline, that is, the date ads, comments, etc. should arrive in Columbus. Materials sent to New Hampshire for publication will have to be forwarded.

The deadline for the next issue and the Spotlight Auction catalogue is June 9.
Contents

Professor Wheatstone and His Inventions ........................................ Page 4
By William Brey

The Greatest Disaster — Martinique, 1902 ........................................ Page 16
By Richard C. Ryder

New Aerospace Stereo TV System .................................................. Page 25

The National Monument That Didn’t Make It .................................... Page 26
By Neal R. Bullington

REGULAR FEATURES

Editorial .................................................. Page 2

Comment ............................................. Page 28

Review ................................................ Page 29

The Unknowns ......................................... Page 30

Classifieds ........................................... Page 32

Events ................................................ Page 36

Viewer Feature ........................................ Page 36

COVER: Looking out at us in this 1837 pencil drawing is Professor Charles Wheatstone at age 35. The drawing is reproduced by special permission of the British National Portrait Gallery. Marking the 139th birthday of the Stereoscope (June 21, 1838) is William Brey’s article on Sir Charles Wheatstone which begins on the next page.
By William Brey

He was a shy man. All his life he suffered acute embarrassment when required to speak in front of an audience. A close friend and fellow member of the Royal Society related the following story: "Wheatstone and the writer of this memoir were for several years members of a small private debating society, comprising several familiar names in science, art, or literature, that met periodically at one another's houses to discuss some extemporized subject, and every member present was expected to speak. Wheatstone could never be induced to open his lips, even on subjects on which he was brimful of information. Several of his more important investigations were for the same reasons from time to time brought before the public by Faraday in the theatre of the Royal Institution."

On one occasion Faraday had cajoled Wheatstone into agreeing to read a paper at a meeting of the Royal Society. As they approached the doors to the theatre Wheatstone panicked, dashed down the stairs and disappeared up the street, leaving Faraday to extemporize before a full house. At future meetings the Director of the Society stationed himself at the head of the stairs to thwart the escape of any other reluctant speakers.

The Early Years

Charles Wheatstone was born February 6, 1802, near Gloucester, England—the second child in a family of two sons and two daughters. His father manufactured and sold musical instruments.

At an early age Wheatstone was sent to school near his home and reportedly could read verses out of the Bible before he was four years old. After his family moved the ninety miles to London, young Wheatstone's education continued in a school at Kensington run by a Mrs. Castlemaine, who was aston-
time his uncle complained that he neglected his work and spent too much time poring over his books. Indeed, it was not unusual for him to shut himself up in the attic to concentrate on his studies. His father subsequently encouraged these interests by taking him away from his uncle and obtaining a loan of additional books from the University for his studies. For the next few years, young Wheatstone concentrated solely on the study of acoustics, developing numerous practical experiments to prove his theories.

At nineteen, his experiments in the transmission of sound resulted in "the enchanted lyre". A hollow box, shaped like an antique lyre, appeared to be suspended from the ceiling by a metal rod. Actually, the rod pierced the floor of the room above and was suspended from the sounding board of a piano. When the piano was played (unheard in the room below), the vibrations were transmitted down the rod. The effect was magical—a lyre played by invisible hands.

At twenty-one, his first paper, "New Experiments on Sound", was published in Thomson’s "Annals of Philosophy". The work was rich in experimental facts concerning the vibrations of chords and rods. This paper was picked up and reprinted by both a French and a German journal which greatly encouraged young Wheatstone. Additional papers appeared in 1827 and 1828 describing his theories; always backed up with actual experimental data to prove them. Wheatstone’s mind seemed to reject anything he could not prove by actual experiment. In 1829, shortly after the accordian was invented on the continent, Wheatstone developed and patented the concertina.

In 1831, he summoned up enough courage to read his first paper before the Royal Society—"Transmission of Sound through Solids". Later in that year, he provided interesting experimental proof on theories of the vibration of air in musical instruments. From this date Wheatstone’s life became that of an earnest, unassuming and hard-working man of science. No doubt his distaste for public speaking accounted for his interest in actual experimental inquiry. If he had been eloquent, he might have gone the
road of other clever men, and become a lecturer. As it was, he clung to the last to actual experiment upon any subject in which he was interested.

**Appointed a Professor**

Two papers, his last on acoustics and first on electricity, were responsible for his appointment, at the age of 32, to the post of Professor of Experimental Philosophy of King's College, London. The paper on acoustics concerned his explanation of Chladni's Figures—the varied patterns produced in thin layers of sand by the vibration of a violin bow when drawn against the edge of the supporting surface. Without the aid of mathematics, he succeeded in predicting the curves the various vibrations should produce.

Wheatstone's first paper in the electrical field was a stunning success. He developed an elegant experiment to measure the speed of electricity by arranging three spark gaps in a wire a quarter of a mile long. The three gaps, placed at the beginning, end, and in the middle of this loop of wire, were arranged adjacent to each other to allow simultaneous observation of the sparks in a revolving mirror. The mirror, revolved by hand at a known speed, was used to observe the displacement of the middle spark relative to the sparks occurring at each end of the wire. The resultant measurement (later proved to be on the high side) was the first real indication of the speed of electricity. Later, the then Professor Wheatstone repeated the experiment with four miles of wire strung around the basement vaults at King's College. His concept of using a revolving mirror as an assist in the measurement was later adapted by Foucault and Fizeau in their measurements of the speed of light.

Two years after his appointment to King's College, he was made a Fellow of the Royal Society. As a Professor he devoted his time to experimental work because he was a failure as a lecturer. He had been caught more than once turning his back to his students and mumbling to his diagrams; nevertheless, he read beautifully, and had a good, although not a powerful voice. Feeling that his place was the laboratory, and not the lecture-room, he gave up his attempts to lecture. It was because of this that Faraday and others brought his inventions and discoveries before public audiences.

He seriously turned his attention to the subject of light and in 1835, in a paper he produced on the subject, he first made known the existence of bright lines in the spectrum emitted when metals are vaporized.

"We have here," he wrote, "a mode of discriminating metallic bodies more readily than that of chemical examination, and which may hereafter be employed for useful purposes." These last words furnish the keynote to all Wheatstone's work; however valuable were the services he rendered to pure science, his ultimate aim was the useful and practical. The science of Spectrum Analysis emerged as a result of these early experiments.

In the year 1836, Professor Wheatstone was approached by a man four years his senior, named William Fothergill Cooke, for technical advice on his version of an electrical telegraph. Thus began a fourteen year association resulting in the world's first practical electrical telegraph system—and an embarrassing and widely publicized disagreement over which one of them deserved the greater share of the credit for the achievement. As usual, well-meaning but misguided friends and relatives managed to help fan the flames of controversy over the years. The Reverend T. F. Cooke, William's brother, published two pamphlets years later whose titles alone must have deeply disturbed Wheatstone—the quiet man of science. One was titled "Authorship of the Practical Electric Telegraph of Great Britain" in 1868, and the second and final blast in 1869, "Invention of the Electric Telegraph—The Charge Against Sir Charles Wheatstone of Tampering with the Press".

The controversy was best summed up by Wheatstone's biographer for the Royal Society who wrote: "To Mr. (now Sir W. F.) Cooke much credit is undoubtedly due for the tact and ability he evinced in directing public attention to the importance of the electric telegraph, and in conducting the joint enterprise to a most successful commercial issue; but to Wheatstone alone must be ascribed the inventive genius and fertility of scientific resource which led to the many successive developments of the electric telegraph."

The revealing story of this relationship is well told by Geoffrey Hubbard in his 1965 book "Cooke and Wheatstone and the Invention of the Electric Telegraph."

Many other successful telegraphic developments were generated by Wheatstone's fertile mind... the alphabet-showing dial telegraph of 1840, the type-printing telegraph in 1841 and the automatic telegraph by which messages could be transmitted at 150 words per minute. This last one enabled the transmission of long columns of news for publication in the daily newspaper.

Wheatstone was the first to suggest and design a submarine telegraph. Early in 1837 he worked on the idea of an underwater telegraph cable and his first practical experiments were conducted on Swansea Bay in 1844 when he succeeded in telegraphing between a boat and a lighthouse. His expertise in this area was called upon when he testified before a Select Committee of the House of Commons on the practicality of an under the channel Telegraph Cable to France.

**The Stereoscope**

In 1838, at the age of 36, his earlier investigations into the properties of light resulted in the publication of "Contributions to the Physiology of Vision. — On Some Remarkable, and Hitherto Unobserved, Phenomena of Binocular Vision". This paper was presented to the Royal Society on June 21st and then to the British Association at Newcastle in August the same year. The Professor was led into this line of investigation upon observing a curious effect when bringing a candle near a metal plate that had been smoothed in a lathe. What he saw was a line of light apparently standing out from this plate, one half above and half below the surface. Closing either eye caused the relief to disappear.

Today we can recreate this illusion (somewhat crudely) that prompted Wheatstone's investigations into binocular vision by using a phonograph record in place of the metal plate. The grooves of the record are similar to the concentric circles produced on a metal plate in the operation...
of smoothing in a lathe. While seated at a table, place a phonograph record flat on the table top in front of you. Next, place a candle in a holder, with the flame approximately twelve inches above the table, next to the record. Slide the candle holder slowly around the edge of the record—first to the right and then to the left. The line of light you will see reflected across the surface of the record always passes through the center of the record. That portion of the line of light nearest the candle appears to come up from the depth of the table and pass through the center of the record. Closing one eye eliminates this illusion of depth. Viewed with both eyes open, the line appears like an arrow piercing the center of the record.

In his paper, Professor Wheatstone states: "It is curious that an effect like this, which must have been seen thousands of times, should never have attracted sufficient attention to have been made the subject of philosophic observation. It was one of the earliest facts which drew my attention to the subject I am now treating."

He went on to demonstrate that the mind perceives an object in three dimensions because each eye receives a slightly different view of it. He then asked himself the key question, (a question previous investigators into binocular vision had never asked), "What would be the visual effect of simultaneously presenting to each eye, instead of the object itself, its projection on a plane surface as it appears to the eye?"

To answer that question, he had an instrument constructed that would do exactly that. The first use of the name he created for this instrument appears in the following sentence. "The frequent reference I shall have occasion to make to this instrument, will render it convenient to give it a specific name; I therefore propose that it be called a Stereoscope, to indicate its property of representing solid figures."

(Wheatstone's use of the word was developed independently of these, combining the Greek words for stereo = solid and graph = I look at.

Shown in illustration is Wheatstone's drawing of his first Stereoscope and a photograph of similar instrument attributed to him now on display at the Science Museum in London.

To help answer his key question, he had prepared drawings of single objects as seen by each eye. The eleven sets of drawings are the world's first stereo views — reproduced approximately half the size actually employed by Wheatstone. He stated, "The drawings, it has already explained, are two different projections of the same object seen from two points of sight, the distance between which is equal to the interval between the eyes of the observer; this interval is generally about 2½ inches."

* Figure 10 will appear as a single line with its lower end inclined towards the observer.
* Figure 11 will appear as a series of points with the right hand ones successively closer to the observer.
* Figure 12 will appear curving towards the observer.
* Figure 13 - a cube.
* Figure 14 - a cone with its tip facing the observer.
* Figure 15 - a truncated pyramid with its base farthest from the eye.
* Figure 16 - two circles at different distances from the eye.
* Figures 17 through 20 are self-evident.
Professor Wheatstone’s drawings that he used in his reflecting stereoscope. The world’s first stereo views.
His precise instructions on using this new apparatus were: "The observer must place his eyes as near as possible to the mirrors, the right eye before the right-hand mirror, and the left eye before the left-hand mirror, and he must move the sliding panels E E to or from him until the two reflected images coincide at the intersection of the optic axes, and form an image of the same apparent magnitude as each of the component pictures. There is only one position in which the binocular image will be immediately seen single, of its proper magnitude, and without fatigue to the eyes."

The Professor then carefully pointed out — "For the purposes of illustration I have employed only outline figures, for had either shading or colouring been introduced it might be supposed that the effect was wholly or in part due to these circumstances, whereas by leaving them out of consideration no room is left to doubt that the entire effect of relief is owing to the simultaneous perception of the two monocular projections, one on each retina. But if it be required to obtain the most faithful resemblances of real objects, shadowing and colouring may properly be employed to heighten the effects. Careful attention would enable an artist to draw and paint the two component pictures, so as to present to the mind of the observer, in the resultant perception, perfect identity with the object represented. Flowers, crystals, busts, vases, instruments of various kinds, etc. might thus be represented so as not to be distinguished by sight from the real objects themselves."

Keep in mind that these words appeared before the brilliant photographic discoveries of Niepce, Daguerre and Talbot had been announced to the world.

How was this scientific instrument so uniquely suited to its purpose received? With surprise and delight! No one was more competent than Sir David Brewster to appreciate it fully, and no one seemed more surprised and gratified, according to the following statement in the proceedings of the British Association: "Sir David Brewster feared that the members could scarcely judge from the very brief and modest account given by Prof. W. of the principle, and of the instrument devised for illustrating it, of its extreme beauty and generality. He considered it one of the most valuable optical papers which had been presented to the Section. He observed that, when taken in conjunction with the law of visible direction in monocular vision, it explains all those phenomena of vision by which philosophers had been so long perplexed; and that vision in three dimensions received the most complete explanation from Prof. W.'s researches. Sir J. Herschel characterized Prof. W.'s discovery as one of the most curious and beautiful for its simplicity in the entire range of experimental optics."

Note well Brewster's remarks at this time because as you will see he later attempted to reduce the claim of Professor Wheatstone to the simple invention of a stereoscope — not the first and not a very convenient one at that!

In Germany the subject excited still more interest and it was at once eagerly taken up. The new light thrown upon the subject of double vision engaged the most able physiologists and metaphysicists — Bruckeck, Volkmann, Morer, Tourtual; and in Geneva, M. Prevost wrote upon the subject.

It is important to recognize that all of Wheatstone's papers were the culmination of much work performed over many years. Even though the birth date of the Stereoscope can be considered June 21, 1838, because that's when the world first observed it, we will see later that its conception took place as early as 1832. The first of two Royal Medals he received was awarded to him for this work on Binocular Vision.

Meanwhile, events outside of England foreshadowed a new use for the Professor's novel instrument. "It was at the beginning of 1839, about six months after the appearance of my memoir in the Philosophical Transactions, that the photographic art became known, and soon after, at my request, Mr. Talbot, the inventor, and Mr. Collen (one of the first cultivators of the art) obligingly prepared for me stereoscopic Talbotypes of full-sized statues, buildings, and even portraits of living persons. M. Quetelet, to whom I communicated this application and sent specimens, made mention of it in the Bulletins of the Brussels Academy of October 1841. To M. Fizeau and M. Claudet I was indebted for the first Daguerreotypes executed for the stereoscope. The beautiful stereoscopic representations of statuary, architecture, machinery, natural history specimens, portraits of living persons, single and in groups, etc., which have recently been produced by M. Soleil and M. Claudet, are now too well known to the public to need more than a slight reference to them."

These words were written by Professor Wheatstone in 1852 in the second part of his "Contributions to the Physiology of Vision". This new work introduced new stereo instruments to the world as well as an improved version of his original one. His earlier model had been redesigned to fold up into a box not larger than six inches square. See figure 3. Another new instrument he developed he named the "Pseudoscope" which converted to the mind false perceptions of objects viewed with it. The prisms were arranged so that each eye sees what the other eye did without the instrument. When viewed through the Pseudoscope (See figure 7) concave objects appeared convex, etc.

A popular magazine of the day, "Household Words", edited by Charles Dickens, gave the following simple explanation of what one sees through a pseudoscope — "Let him take up a pseudoscope, and look through it, properly focussed. Let him look at some man on the other side of the way. He will not appear to be on the other side at all, the street will have come in doors, and the house will be turned out of window. Let him look at a friend's face. The cheeks will so decidedly fall in, that the face will become no face but a hollow mould. Let him look into the bottom of a teacup. For a minute he may see it as it is; but — O, hocus, focus — in the twinkling of an eye, it has turned inside out. It has no hollow, but is all solid. Let him look at a framed picture hung against the wall. It will seem to be, not hung against the wall, but to be let into it. The frame will appear to surround it like a moat. There is a pretty instrument for turning everything hind-
Another new instrument he called the Refracting Stereoscope and its illustration in figure 4 accompanied the paper. Of this instrument, Wheatstone had this to say—"The refracting stereoscope has the advantage of portability, but it is limited to pictures of small dimensions. It is well suited for Daguerreotypes, which are usually of small size, and, on account of the nature of their reflecting surface, must be viewed in a particular direction with respect to the light which falls upon them: ... It consists of a base 6 inches long and 4 inches broad, upon which stands an upright partition, 5 inches high, dividing it equally; this partition is capable of extension by means of a slide to double the length."

In addition to 'Stereoscope', Wheatstone is responsible for two other words commonly used today. He was the first to use the word 'microphone' and the first to use 'rheostat'. He developed and named this last device to aid him in his electrical experiments.

There is evidence that Professor Wheatstone maintained a continuing interest in the new science of Photography despite his obviously busy schedule. He was a member of the Photographic Society of London and served on their Council as late as 1873. Occasional letters from him appeared in their Journal. One suggested the use of certain chemicals for photographic work in 1853. In another letter the same year, he described a different type of reflecting stereoscope. He wrote: "I have constructed an instrument, very convenient for carrying about, which is adapted to exhibit pictures of the largest dimensions usually taken, as well as smaller ones, and which may be made use of either for mounted or unmounted pictures. ... The base and sides consist of jointed bars on the principle of the lazy-tongs; the two mirrors fold together back to back, and, by means of a hinge on their support, fall into a groove on the base fitted to receive them." The reflected images in this instrument were viewed through a pair of ordinary spectacle lenses. "The lenses are moveable in a vertical direction, in order that they may be fixed at the proper point of sight; the effect of a stereoscopic picture greatly depends on its being thus viewed, though it is a circumstance which is very generally disregarded."
Professor Wheatstone became ensnared in a number of controversies with Sir David Brewster in later years, the exact reasons for which have not been fully explained to this day. Sir David Brewster, "a disputatious antagonist," to use Wheatstone's words, wrote a book in 1856 that can only be considered a personal attack on Professor Wheatstone's intelligence and character. In "The Stereoscope", Brewster states that the theory of binocular vision, first advanced by Wheatstone twenty-two years earlier, was well known centuries before and that even the concept of the Stereoscope had been anticipated by another, one James Elliot, a Professor of Mathematics in Brewster's home town of Edinburgh. The ordinary lay reader of this attack may well have been taken in by Brewster's scientific credentials and title, but his scientific contemporaries were not. The following excerpts are from a review of "The Stereoscope" that appeared in the contemporary literature section of the "Westminster Review" for October 1856.

"Sir David Brewster's treatise on the Stereoscope appears to have been written with three principal objects:—First, to show that in the idea of the stereoscope there is no novelty whatever, and that Professor Wheatstone's merit in the invention consists merely in his having been one of the first to carry that idea into practice, and this in a very clumsy manner; second, to prove that as to the degree in which the mind of 1839 and the Sir D. Brewster of 1856 differs from one another. Sir D. Brewster all the credit which can fairly attach to the popularization of the instrument, we affirm to his own name, both of which Professor Wheatstone communicated it in 1839, shortly after having laid it before the Royal Society. The contrast between the Sir D. Brewster of 1839 and the Sir D. Brewster of 1856, affords an instructive lesson as to the degree in which the mind even of a professor may be warped by the greed of fame..."

"Sir D. Brewster's own appreciation of this invention, at a time when, not having himself any participation in it, he was free to form a candid opinion, is, fortunately, preserved in the contemporary record of the proceedings of the British Association, to which Professor Wheatstone communicated it in 1839, shortly after having laid it before the Royal Society. The contrast between the Sir D. Brewster of 1839 and the Sir D. Brewster of 1856, affords an instructive lesson as to the degree in which the mind even of a professor may be warped by the greed of fame..."

"Fully conceding, therefore, to Sir D. Brewster all the credit which can fairly attach to the popularization of the instrument, we affirm that he has added nothing whatever of importance to our scientific knowledge of the principles of binocular vision; and that, in fact, almost everything which he has written on the subject has tended to confuse it further, instead of to clear up its difficulties."

In this same month, an anonymous letter to 'The Times' appeared that repeated statements first appearing in Brewster's book concerning Elliot's concept of the Stereoscope preceding Wheatstone's. Professor Wheatstone responded to this anonymous letter with some facts that had not previously been known.

"To the Editor of 'The Times'. Sir,—Allow me to make a few remarks on a letter which appeared in your columns yesterday, relating to the invention of the Stereoscope. Your correspondent "A", by exclusively adopting the dates and statements put forward in various publications by Sir D. Brewster, with the intention of proving that Mr. Elliot had conceived the idea of a stereoscope before I had, has given the extensive circulation of 'The Times' to these imperfect allegations, and I wish to show by sufficient facts that the claim thus supported is untenable."

He then pointed out that Professor Herbert Mayo's book "Outlines of Human Physiology" which mentions Wheatstone's work, appeared a year before Elliot's claim. He also quoted Brewster's flattering words of 1838 and concluded with:..."and Sir David is the last person who ought to have advanced them, since I can shew, from our correspondence, that he was aware, so early as 1832, that at that time I was preparing for publication my memoir on the subject..."

After this appeared in 'The Times', the original letterwriter removed his cloak of anonymity to reveal himself as Sir David Brewster. He wrote two additional letters using his own name, both of which Professor Wheatstone responded to. As we can imagine, this series of letters generated considerable interest in scientific and photographic circles and the entire series of six letters was reprinted in the "Liverpool and Manchester Photographic Journals" of January, 1859.

In his second letter, Brewster pointed out that the reference to Wheatstone's work in Mayo's Outlines makes no mention whatever of any instrument or method of combining the pictures. He also stated: "In the preceding observations I have avoided the offensive personalities with which this subject has been noticed in a silly article in the "Westminster Review". I have no personal feelings to gratify in giving an opinion on this question. As the inventor of the lenticular stereoscope now in universal use, and of other forms of the instrument, I, of course, feel an in-
terest in the subject, and involving as it does nice questions in the theory of vision, that interest has been greatly increased."

The reference to the "silly article" in the "Westminster Review" prompted the Editor of 'The Times' to include the following footnote to Brewster's letter: "The author of the "silly article" to which Sir David here alludes is a gentleman of the highest attainments and standing in the scientific world. His opinions, as there stated, we know to be a true reflex of the feelings of those who are best competent to give a judgement on this subject."

Once again the Professor wrote to 'The Times' providing additional evidence of priority: "Sir—It is difficult to deal with Sir David Brewster's reasoning. I have proved by incontrovertible dates my priority both in the discovery of the principle of the stereoscope and in the invention of the instrument. Sir David, in his reply, fully admits these dates, and says, 'it is evident that Mr. Wheatstone was acquainted with the principles of the stereoscope in 1833, and therefore earlier than Mr. Elliot,' yet he announces that unless additional evidence be brought forward he will continue to place that gentleman's claims above mine whenever he has occasion to write or speak on the subject; and he further requires a proof of my having constructed a stereoscope at the time my discovery was first announced. I cannot conceive why such a proof should be thought necessary, but I trust that the following evidence of Mr. Murray, of the firm of Murray and Heath, opticians in Piccadilly, will be deemed conclusive as to this point: Piccadilly, Oct. 27th. 'Sir—From an examination of the accounts furnished to you by Mr. Newman, of Regent-street, during the time I was in his establishment, and which were prepared by myself, I am able to assign the date of my first knowledge of your stereoscopes, both with reflecting mirrors and refracting prisms, to the latter part of 1832. I am, Sir, yours faithfully, R. Murray'"

"A public journal is not the proper place to enter into a public controversy on points of scientific theory, but I cannot allow Sir D. Brewster's assertion, that he has 'given the true and demonstrable theory of the stereoscope, after Mr. Wheatstone had wholly failed and acknowledged his failure,' to remain unnoticed. It is true that I have stated, and still believe, that there are some points requiring further investigation; but I venture to affirm that Sir D. Brewster has done nothing to advance our previous theoretical knowledge of the subject; and many of the views he has brought forward regarding the philosophy of vision I hold to be manifestly erroneous. In his recent work, and elsewhere, he misrepresents my facts and conclusions in a most extraordinary manner; and he attributes to me, without the slightest foundation, a hypothesis which I never for a moment maintained, and which I utterly repudiate. He makes no mention of some of my most important results, and, when he does borrow from my memoirs, unless he has a deprecating remark to make, he omits all mention of my name; and further, he entirely ignores the memoirs of those eminent writers who, since my first publication, have treated of the stereoscopic phenomena; and the names of Bruecke, Tourtual, Prevost, Moser, Volkmann, Dove, Rogers, Serre, etc., who have all brought much thought to bear upon the subject, are not even once mentioned in his pages. I am, Sir, your obedient Servant, C. Wheatstone. Oct. 29th, 1856.'"

An additional letter from each of them concluded this remarkable exchange in a public forum. The Professor's final letter notes the reason for the six year span between his early work on binocular vision in 1832 and publication of the results in 1838.

"If any justification of the delay in publishing my complete results, after I had announced the general facts, be necessary, it may be found in the following circumstances. Between the periods referred to, I published, in 1833, my memoir 'on the figures of vibrating surfaces;' and, in 1834, my memoir 'on the velocity of electricity and the duration of electric light.' which gained for me admission to the French Academy of Sciences; from 1834 to 1838 I was engrossingly engaged in those experiments relating to electrical phenomena to which my last investigations had led me, and from which resulted all my inventions connected with the electric telegraph. It is not much to be wondered at, that, during this interval I was obliged to defer to a future time the consideration of subjects of less immediate interest, some of which I have not even yet had the opportunity of resuming."

He summed up his feelings on the entire matter with these words: "I was far from thinking, when answering an anonymous letter in the columns of 'The Times', that it had emanated from the same source from which had proceeded all the attacks which have, with reference to this matter, during the last four years been directed against me; but I cannot regret the opportunity which that circumstance has offered me to correct, in the most efficacious manner, a few of the most prominent of the misstatements made."

All of the above took place in 1856. But the damage had been done. Brewster's book has become a reference work for other writers who have perpetuated the name of Elliot. Brewster also wrote a long article on the Stereoscope for the Encyclopedia Britannica of 1860. Elliot was again featured prominently.

Elliot's Mistake:

Incredibly enough, the true story of Elliot's stereoscope had appeared in print in 1852. "The Photographic News" of September 7, 1860, retold the true story of Elliot's claim once again for their readers: "So much nonsense has been written on the subject of the stereoscope, and the physiology of stereoscopic vision, that it is quite a relief to turn to some observations on these subjects by so excellent a physiologist as Dr. Wharton Jones, professor of ophthalmic medicine in University College. The introductory remarks respecting the history of the stereoscope, are of necessity brief, and give Professor Wheatstone full credit for the discovery as far as Sir David Brewster is concerned. But as if that was impossible for even the best informed person to touch upon this subject without falling into error, Mr. Elliot's name is introduced as being a rival claimant with Professor Wheatstone for the honour of the discovery. The history of this claim is a rather remarkable one, and ought to be a warning to any one who is not quite certain of a
statement, to pause before he commits it to print. In the “Philosophical Magazine” for April, 1852, appeared a paper by Professor Wheatstone, in which the theory and construction of the stereoscope was fully described. A foot-note to this paper however stated that it was a reprint from the “Philosophical Transactions” for 1838. A Mr. Elliot, not having noticed this foot-note, thereupon published a letter, stating that Professor Wheatstone’s discovery was not new, he having found out the same thing some years before, (i.e. before 1852). The foot-note to the paper was then pointed out to Mr. Elliot, showing that the original publication of the paper by Professor Wheatstone dated as far back as 1838. Whereupon, Mr. Elliot at once wrote to renounce all claim to the discovery, stating that he had not noticed the prior date, and giving Professor Wheatstone full credit for the invention, as well as for the priority of publication. Mr. Elliot undoubtedly acted rather hastily in the first instance, but he immediately made all the amends in his power, and as the correspondence was all contained in successive numbers of the “Philosophical Magazine”, we should have imagined that the matter might have been allowed to end here. Other persons, however, besides Mr. Elliot, form an opinion upon only reading a part of the evidence. Many who ought to know more of the real merits of the case place Mr. Elliot in the position of first discoverer, although they sometimes say that Professor Wheatstone discovered it independently; but in no single instance that we have yet seen is full justice done to the inventor of that wonderful instrument the stereoscope, the discovery of which is absolutely and solely due to the genius of Professor Wheatstone, who, moreover, has given in his original paper, the best, if not the only, account of the theoretical and physiological laws upon which it is based.”

An examination of the periodical referenced, “The London, Edinburgh and Dublin Philosophical Magazine and Journal of Science”, to give it its full title, reveals that one of the four editors of this monthly was Sir David Brewster. He was certainly aware of Elliot’s original letter that appeared in the May, 1852 issue, so as Editor he was surely aware that Wheatstone himself pointed out Elliot’s mistake in a letter that was printed in their June issue. Appearing directly beneath Wheatstone’s letter is the following:

“We have, since the publication of our last Number, received a note from Mr. Elliot, stating, that he had been aware that Prof. Wheatstone had produced his Stereoscope so early in 1838, he would not have sent the statement inserted therein.

—Editor”

Despite this disclaimer by Elliot, Brewster trumpeted Elliot’s name in his 1856 book and in subsequent correspondence and articles. A most amazing individual was Brewster to so arrogantly ignore the facts.

Brewster’s personal animosity towards Wheatstone apparently began around the latter part of 1852 based on Wheatstone’s remarks in ‘The Times’ about the attacks of the past four years. As an editor of the Philosophical Magazine, it is doubtful if Brewster would have reprinted Wheatstone’s 1838 paper in April 1852 if he had harbored any ill will towards him at that time. Whatever was the cause, it has never been satisfactorily explained to this day.

Chimenti Pictures:

In 1860 Sir David received another opportunity to erode the Professor’s reputation by raising doubts as to the originality of his work when he reported to the Photographic Society of Scotland the discovery of “the Binocular drawings of Jacapo Chimenti”. The following, by Sir David Brewster, appeared in “The Photographic Journal” of May 15, 1860: “Last summer when Mr. Alexander Crum Brown and his brother Dr. John Brown were visiting the Musée Wicar at Lille, Mr. Brown observed two drawings placed side by side, and so perfectly similar that he could account for the fact only by supposing that they were binocular pictures intended to be combined into relief either by the eye or by an instrument.

“The following is the account of these pictures which he communicated to Principal Forbes, who brought it under my notice:—

‘In the Musée Wicar at Lille there are two drawings, with a pen and in water colours of a young man sitting upon a bank and drawing with a pair of compasses. These two drawings are by Jacopo Chimenti, a painter of the Florentine school, who was born at Empoli, near Florence, in 1554, and died in 1640.

‘They are drawings of the same object, from points of view slightly different.

‘They are so exactly on the same scale, that, by converging the optic axes, I succeeded in uniting the two so as to produce an image in relief. They united so easily and completely that I could not help thinking that they had been drawn for the purpose of being looked at in that way. The figure has one arm extended towards the spectator, and with the other has drawn a line upon the floor. As far as I could judge, the difference between the two pictures was greater than would be produced by a change of the position of a spectator equal to the distance between the two eyes, so that the stereoscopic effect was somewhat exaggerated.

‘I think, if we had a photograph of the pictures, it would be much easier to prove the stereoscopic character than merely by referring to them; and if the photographs were of such a size that they could be transposed and put into the stereoscope, any one could see it.’

Brewster concluded with: “This account of the two drawings is so distinct and evinces such a knowledge of the subject, that we cannot for a moment doubt that they are binocular drawings intended by the artist to be united into relief either by the eye or by an instrument.”

In June, 1860, Professor Wheatstone obtained photographs of the Chimenti Drawings, placed them in a Stereoscope and he and his friends found them not to be stereoscopic. Copies were sent to the French Photographic Society and laid before the members at their July meeting. They reported: “When placed in the stereoscope, the two pictures united perfectly, but did not present the smallest effect of relief. We think it is fair, therefore, to presume that, whatever may have been the object proposed by the artist in executing the two similar pictures, it was certainly not from any knowledge of the stereoscopic phenomenon, and that Sir David Brewster was in this instance wrong in his conjecture.”

It was not until March 11, 1862, that Brewster himself obtained pic-
tures of the drawings which he placed before the Photographic Society of Scotland. "The full stereoscopic relief of Chimenti's pictures was seen and acknowledged by all the Members of the Society."

Other opinions in this controversy were covered in detail in the "Photographic Journal" of March 15, April 15 (where an engraving of the drawings was published for the first time—see illustration) and June 16, 1862. The controversial subject was never completely settled to everyone's satisfaction. Each side had its unswerving believers.

Ten years later "the Journal of the Franklin Institute" published a series of articles by Professor Charles F. Himes titled "Contributions to the Subject of Binocular Vision" (from January to June 1872) that helps to explain the diverse opinion. A complete analysis of the Chimenti drawings had been made by careful measurement of corresponding points by Professor Emerson of Troy University. The differences in the pictures he found could easily account for the conflicting opinions, rendered in the earlier stages of the controversy, after simple inspection in the stereoscope. Professor Himes wrote: "Some, as would be most natural, seem to have been influenced most by the points that were truly stereoscopic, whilst others, observing more closely, and perhaps with less bias, saw decided symptoms of unnatural, pseudoscopic effect. It is plain that careful measurement, as before given, alone was competent to decide the question as to the purpose of these pictures, and since it revealed such conflicting stereoscopic data throughout, it remained hardly supposable that any artist of reputation could have designed them as companion binocular pictures, much less than he could have designed them to be united in some way or other to produce an impression of relief. Besides, the pictures, on careful measurement, did not prove to be identical in size, one being about one-half inch larger than the other.

It seems, therefore, that one is most probably a copy of the other; that the differences are purely accidental, and such as are unavoidable in copying, and that, therefore, when compared, the difference in distances of corresponding points is sometimes on the side of stereoscopic effect, and at other times on the side of pseudoscopic effect."

Where are the Chimenti pictures today? What would a modern observer think of the stereoscopic nature of these drawings? These questions were asked, and answered, by Arther T. Gill of the Royal Photographic Society. Mr. Gill visited Lille where he was able to examine the drawings that were the center of controversy over a hundred years ago. In the December, 1969, issue of the Journal of the Royal Photographic Society, he reported: "The drawings are still preserved in Lille. I saw them by special application a few years ago at the Palais des Beaux Arts, in the Wicar collection. They are separately mounted; in fact there is no evidence that they were ever mounted as a pair, though they may have been displayed side by side. The actual drawings are about twelve inches high by about eight and a half inches wide, and they are both drawn in the same brownish pen and wash style. They are almost the same size. My impression of them is that they were more sketchily done than "The Photographic Journal" "facsimile" suggested. They are kept in a folder with other Chimenti drawings of similar studio sketches. There are no other "pairs" in the folder. I do not possess the skill of being able to combine pictures stereoscopically in free viewing, but the colour slides I took of them, from which I have made these illustrations (I was not able to do more than lean them against a chair and "snap" them) when viewed stereoscopically give a certain amount of solid effect, but this is chiefly about the head and shoulders. The arms particularly do not appear solid. On one of the pictures (left in the illustration) there are traces of earlier pencil sketching of the extended arm in a rather lower position. The lower part of the body and the stool will not merge at all satisfactorily. It does not seem to matter which is taken as right or left, the same partial merging of the drawings is possible with the feeling that they might be solid. It is easy to see how the controversy arose and how the protagonists and antagonists could be so strong in their convictions. In all, the more logical conclusion must be against Brewster and in favour of two sketches, one redrawn from the other with slight differences between them."

Professor Wheatstone's Other Activities:

At the age of forty-five the Professor married Emma West, the daughter of a Taunton tradesman, "a young lady of considerable personal attraction". The union produced five children. His wife's death nineteen years later left him a large family to raise alone.

The remainder of Wheatstone's life was a continuous round of experimentation concentrated mostly in the electrical area. His use of Christie's Bridge to measure electrical resistance was so well known
that the device is called "Wheatstone's Bridge" to this day. His electric clocks were well known, various electrical registers were invented by him—to record a variety of meteorological data and to register the velocity of a bullet. Wheatstone contributed to the development of the dynamo by grouping the armature coils to give a really continuous current. He also produced a type-printing telegraph (forerunner of the teletype machine).

The Catalog of the Royal Society contains 31 headings on his papers. Heat, light, electricity, sound, all received his attention at different periods.

Still another area of Wheatstone's widespread interest was in the field of cryptography. The British Museum had purchased what appeared to be an important document. Each of its seven pages bore the signature of King Charles the First; however, the pages were filled with columns of numbers. This long cipher, which had baffled all other experts, was translated by Professor Wheatstone in 1860. What had at first appeared to be a cipher in English turned out to be one in French! He also created a cipher machine that favorably impressed experts in this esoteric field, so far removed from his work in electricity. In addition, the Professor developed a cipher that was used for many years by the British Army. It was ideal for field use because it depended on a keyword that could be easily remembered and changed. This cipher was spoken of so glowingly (and often) by Lord Playfair, a close friend of the Professor and fellow cipher enthusiast, that his name, instead of Wheatstone's, gradually became associated with it. To this day, it is known as the Playfair cipher.

One month before his sixty-sixth birthday, Professor Wheatstone became Sir Charles Wheatstone when he was Knighted by the Queen. Many scientific honors had been bestowed on the great physicist over the years; he had been elected a Fellow of the Royal Society in 1836, a Chevalier of the Legion of Honour in 1855, and a foreign Associate of the Academy of Sciences of France in 1873; he possessed thirty-four distinctions or diplomas conferred upon him by various governments, universities, and learned societies, of which eight were German, six French, five English, three Swiss, two Scotch, two Italian, two American, and one each of Irish, Belgian, Russian, Swedish, Dutch, and Brazilian origin.

Sir Charles Wheatstone remained busy and active right up to the end of his life. He was visiting Paris to observe the inauguration of his automatic telegraph between that city and Marseilles when he caught cold. He died there of congestion of the lungs on the 19th of October at age 73. His body was returned to England where he was buried on a raw October morning in Kensal Green Cemetery in the same plot with his wife, brother, and sister. A large gathering of his scientific compatriots attended his funeral.

In his will, dated October 16, 1875, he bequeathed his collection of scientific books and instruments as well as his medals and diplomas to King's College, London, where they are preserved to this day in the Wheatstone collection. A legacy of 500 pounds for the purchase of scientific instruments was also earmarked for King's College. His collection of portraits of men of science he bequeathed to the Royal Society.

Wheatstone's early work on submarine cables helped to speed the news of his passing around the world. Within two days of his death, the 'New York Times' printed his obituary, having received the word via that remarkable wonder of the age—the Atlantic Cable.

BIBLIOGRAPHY

*The Stereoscope - Sir David Brewster - 1856
The Telegraphic Journal - Nov. 1, 1875 P 241 Nov. 15, 1875 P 253-255
Minutes of the Proceedings of the Institute of Civil Engineers (Memoirs of Deceased Members) Vol. ILVII - 1876 P 283-290
Nature - Apr. 27, 1876 - Scientific Worthies P 501-503

Wheatstone's Scientific Papers - Published by Physical Society of London - 1879 P 225-283
Lives of the Electricians - W. T. Jeans - 1887 P 210-221
Pioneers of Electrical Communication - Rollo Appleyard London - 1930
Cooke and Wheatstone and the Invention of the Electric Telegraph - Geoffrey Hubbard - 1965
The Codebreakers - The Story of Secret Writing - David Kahn - 1967 P 196-202
Dictionary of Scientific Biography - Vol. XIV
Dictionary of National Biography - Vol. XX
Michael Faraday - a Biography by L. Pearce Williams 1971 Paperback P 331
Sir Charles Wheatstone - Brian Bowers - 1975. This new work is difficult to locate in the U. S. Dr. Bowers is with the Science Museum in London and his book was published by Her Majesty's Stationery Office. Since this is a Government publication, it does not appear in the standard listing of books in print. I was able to scan through a copy briefly at the New York Public Library, and Dr. Bowers presents some new facts on Wheatstone's personal life that are not available from the sources listed above. It is from the Bibliography in Bower's book that I learned of Arthur Gill's article in the Photographic Journal.

Other sources used are noted in text.

*Brewster's book was republished in 1972, but unfortunately, no mention of the controversy with Wheatstone appears in the introduction. So once again Brewster's legacy of misinformation is praising the name of Elliot (who was no more than a minor footnote in the history of the stereoscope) and degrading that of Wheatstone.

Note: Anyone wishing to experience the Victorian Age in which Professor Wheatstone lived and worked, would do well to read Michael Crichton's best seller "The Great Train Robbery". The atmosphere, social attitudes, and emerging technology are all interwoven into a crackergack of a true story. Available in paperback.
The Greatest Disaster
Martinique - 1902

By Richard C. Ryder

The Chicago Fire, the Johnstown Flood, the Galveston Hurricane, and the San Francisco Earthquake - the list of natural catastrophes preserved in stereographs is a long one and includes some of the most well-known disasters of all time. But the greatest natural tragedy recorded in stereo was not one of these. It

1 "Harbor of St. Pierre, Martinique, W.I." by William H. Rau. (All views are from the author's collection except as noted.)

2 "Statue of Empress Josephine, in the Esplanade, Fort de France - near destroyed St. Pierre, her birthplace - Martinique, W. I." by Underwood & Underwood. When the pressures of public life bore heavily on Louis Mouttet, the governor would spend hours in Fort de France's public square contemplating the statue of Napoleon's beloved empress; he was seen in May of 1902.
3 “Bed cut through Precheur by river of mud from Mont Pelé, showing destroyed Cathedral, Martinique” by Underwood & Underwood. Precheur was one of the first outlying villages to experience the wrath of Pelé; refugees from here helped swell St. Pierre’s population in its final days.

occurred instead on the tropical island of Martinique in the French West Indies in May of 1902, exactly seventy-five years ago this month.

Martinique is one of a number of small volcanic islands known as the Lesser Antilles that stretch in a broad arc across the eastern edge of the Caribbean from Puerto Rico south to the northern fringe of South America. Along with the other sugar islands of the West Indies, Martinique had been fiercely contested for during the naval wars of the eighteenth century. Since then the island had led a more placid existence, far from the center of the international arena. The population of Martinique, a colorful admixture of French, creole, mulatto, and black, was engaged largely in raising sugar cane and in the manufacture of rum, the island’s principal exports.

The predominant geographic feature of Martinique is Mont Pelé, a bare volcanic cone rising nearly 5000 feet above the green of the

1Mont Pelé means “bald mountain” and is not, as some have assumed a reference to the Hawaiian volcano goddess, Pele; the resemblance, though coincidental, is certainly appropriate.

4 “Mont Pelé, from the Sea - showing Smoke, and Volcanic Mud and Ashes at base - Martinique” by Underwood & Underwood. Comparison with other photographs shows that this is the same mud flow that buried the Guerin refinery on the fifth of May and triggered the tidal wave that inundated the St. Pierre waterfront.
forests and sugar plantations on the island's northwestern side. Situated at the base of the mountain, a scant four miles south of the crater, lay St. Pierre, one of Martinique's two main population centers, the other being Fort de France, some fifteen miles away. An attractive city of 26,000 people in 1902, St. Pierre stretched along the coastline, its two- and three-story stone houses and narrow streets hemmed in by a ridge to landward. From the harbor, the city with its backdrop of verdant hills was particularly appealing, its yellowed walls and red tile roofs interlaced with a variety of tropical foliage including the stately royal palm, and the whole surmounted by the twin spires of the Mouillage Cathedral. Although government centered in Fort de France, St. Pierre was the hub of the economic and cultural life of the planter elite. The waterfront district, an area of warehouses and cheap bordellos, enjoyed an unsavory reputation that gave a different slant to the phrase "Paris of the West Indies."

In the spring of 1902, St. Pierre's...
chief preoccupation was politics. In May, Martinique's citizens would go to the polls to choose the island's two members to the Chamber of Deputies, the lower house of the French parliament, and the conservatively-oriented, planter-dominated Progressive Party was frankly worried. Three years before, the emerging Radical Party, surprising everyone, had elected Amédeé Knight, vigorous, capable, Paris-educated, and black, to the island's only Senate seat in Paris. Now with the elections less than three weeks away, Fernand Clerc, the island's largest planter and Progressive candidate for the St. Pierre District, was demonstrating an amazing independent-mindedness that threatened to erode party support.

Martinique's appointed colonial governor, Louis Mouttet, only seven months out from Paris, was typical.
of the civil servants of his class, fervently dedicated to the status quo and determined to do nothing to jeopardize a stable, if slightly corrupt, administration. In the person of the governor, the Progressives rightly sensed a natural ally, one they would increasingly come to depend on to stave off disaster in the days ahead. But a Radical victory wasn't the only disaster looming on the horizon.

Only twice within historic memory had Mt. Pelée erupted, in 1792 and again in 1851. On those occasions the volcano had expelled moderate amounts of ash and steam; damage had been slight and casualties nonexistent. What little lava there was had tended to flow down the northern flank of the mountain, following the route of earlier prehistoric flows.

In 1902 the first signs of the mountains reawakening were noticed early in April and grew progressively worse. When the residents of St. Pierre awoke on Friday, May 2nd, they were therefore more curious than surprised to discover that a thin layer of gray ash had fallen during the night. There was virtually no alarm; few people sensed, as did Fernand Clerc and the American consul, Thomas Prentiss, any real threat to the town. There was nothing to suggest that they and their city had less than one week to live.

Throughout the day the mountain continued to belch forth vast clouds of ash at irregular intervals. By nightfall, the gray blanket in St. Pierre's streets, already more than an inch deep, was littered with dead birds and domestic animals that had been smothered by the ash. Also on Friday, Pelée had claimed its first human victims, including a planter and several of his men engulfed by a mud flow that had poured down a narrow valley on the flank of the mountain.

By Saturday, rainstorms spawned by the turbulence at Pelée's summit and underground water forced out by subterranean pressures had turned the streams around the mountain's base into ash-choked torrents, laden with uprooted vegetation, drowned animals, and an occasional corpse. The flooding Roxelane River isolated the British Government Residency from the rest of St. Pierre and effectively prevented the consul from adding his voice to those of Clerc and Prentiss in urging evacuation of the city.

Ignoring their maverick candidate and stung by the taunts of an opposition that sought to exploit Pelée for partisan gain, the Progressive press denounced as alarmist all who foresaw any danger in the volcano's behavior. With the full support of the governor, Les Colonies, St. Pierre's largest and most influential paper, manufactured false and misleading articles designed to reassure the populace. The governor himself, sensing in Pelée a threat to his own position, set up a special Commission of Inquiry with secret instructions to minimize any hazards.

That night a series of sharp earth tremors caused considerable damage and left 29 dead in the city, while in the darkness the clouds over Pelée's summit reflected the glow of molten lava in the crater.

If conditions were bad in St. Pierre, they were infinitely worse in the villages and plantations ringing Pelée's base. Refugees from these outlying areas crowded into the city, their numbers imposing a strain on St. Pierre's food and housing. By now there was also a constant trickle of families leaving St. Pierre for the more congenial atmosphere of Fort de France; this miniature exodus would continue, despite the jeers of Les Colonies, until Louis Mouttet posted soldiers to close the road lest the refugees spread panic throughout the island. Those leaving were more than compensated for by the islanders seeking a haven in the city; by May 8th, the population...
10 "Terrified Refugees, fleeing in Boats from Mont Pelée - en route to Fort de France, Martinique" by Underwood & Underwood.

of St. Pierre would have swollen to about 30,000.

On Sunday night, Louis Mouttet finally decided to inform his superiors in Paris of the situation. His telegram, a masterpiece of bureaucratic misinformation, contained no word of the more than 200 casualties and ended simply, "The eruption appears to be on the wane." A later, more descriptive telegram from Senator Knight would prove an embarrassment for the governor.

On the morning of Monday, May 5th, Pelée destroyed the Guerin sugar refinery which stood overlooking the sea at the mouth of the Blanche River, a few miles north of St. Pierre. The refinery vanished as a roaring, cascading wall of mud, lava, and gases, more than 100 feet high and a quarter of a mile wide, hurtled down the Blanche riverbed, surged over it and into the sea. Like the city, the refinery had been about four miles from the crater.

The impact of millions of tons of mud pouring into the sea created a new menace, a huge wave that rolled south along the coast and into the roadstead of St. Pierre. It demolished much of the city's waterfront, collapsing warehouses and hurling several large sailing vessels ashore. Many drowned, including all the children in the orphanage of St. Anne and the city's most prominent banker, Emile le Cure.

All semblance of civil authority was fast disappearing in St. Pierre.

11 "Terrible Mont Pelée, from bridge over the Capot River - looking S.W. - Martinique" by Underwood & Underwood.

(Paul Wing Collection)
Infectious disease was spreading and at night voodoo practitioners stalked the streets unchecked, adding to the climate of fear. In the predawn hours of Wednesday several thunderous explosions shook the city; chunks of glowing rock shot from the crater and arched across the darkness to fall on the surrounding countryside. Several landed on the northern edge of St. Pierre, starting a number of fires in the mulatto quarter. The volcano soon subsided and the fires were contained, but Pelée had again demonstrated its unpredictable violence.

Thursday was a feast day of the Roman Catholic Church and the governor and his wife had planned to spend the day in St. Pierre. As the carriage bearing Louis Mouttet and his party entered the city on Wednesday afternoon, the governor became moody and silent; conditions were far worse than he had imagined. Mouttet had allowed himself to become a victim of his own propaganda.

Thursday, the eighth of May, Ascension Day, dawned bright and clear over Martinique; a breeze from the south blew Pelée's smoke away from the city. Fate would be kind to Fernand Clerc this morning; the planter, alarmed by a wildly fluctuating barometer, was taking his family south by carriage to a place of safety. As the early sun beat down on the city lying battered and bruised beneath its gray cloak, Father Alte Roche made his way out of St. Pierre; he was scheduled to celebrate Communion in his parish church at noon and he intended to spend the morning hours observing Pelée from the summit of Mount Verte. Before he left, Father Roche had been told by the American consul that the governor had decided to evacuate the city and would make the announcement at the close of the High Mass at the cathedral. Louis Mouttet had finally overcome his political inertia and reached the right decision. Unfortunately St. Pierre would never know of it.

In Fort de France the telegraph operator had just finished transmitting a routine message when the lines to St. Pierre went dead. The time was 8:02 A.M.

From the heights south and east of the city, observers could see a bright glow in a patch of rocks some distance below Pelée's rim. On Mount Verte, Father Roche broke down and wept, like Jeremiah, over a city yet to die; from his vantage the spreading glow was in direct line with St. Pierre.

Suddenly, a black shape of monstrous proportions, perhaps thirteen hundred feet high and shot through with flame, seemed to grow from the side of the mountain and began to glide, almost lazily at first, then with gathering speed, down the slope. Accompanied by a deafening roar and total darkness, the mass of incandescent gas, superheated steam, and ash, known as nuée ardente, reached the city in only two minutes. As the deadly cloud rolled south across the city and into the roadstead, the towers of the cathedral stood out briefly before they too vanished.

Of the ships in the harbor, several had simply disappeared, sunk by the fury of the initial blast; the others were burning. Incredibly the British steamer Roddam was somehow underway. With his ship crippled, most of his crew either dead or incapacitated, and himself severely burned, Captain Edward Freeman steered Roddam for the open sea. He would eventually bring her into St. Lucia intact, the only ship to emerge from the holocaust at St. Pierre.

As the darkness began to disperse, the shattered city could be glimpsed, bathed in the light of its own fires. Among the ruins and buried in the rubble lay the bodies of St. Pierre's 30,000, among them Louis Mouttet and his wife, the deputy governor, the members of the special Commission of Inquiry, and the Amer-
"From Prayer Hill (Calvary) over the prayer 'stations,' and Morne Rouge (N.W.) to Mont Pelée, Martinique" by Underwood & Underwood. Morne Rouge and its cathedral were photographed by Underwood in late May, several months before its subsequent destruction by another of Pelée's explosive outbursts.

In the city itself there were only two survivors, both badly burned. One, a cobbler, had barricaded himself in his basement. The other, a condemned murderer, was confined in the dungeon of St. Pierre's prison; because of his ordeal, Auguste Ciparis would be pardoned and spend his remaining years as a curiosity in the Barnum and Bailey Circus. Ironically, in bringing death to so many, Pelée had brought life to one.1

1Accounts differ as to the number of survivors, as well as upon other details of the disaster; some credit only Ciparis, while others include two or three victims found alive who died of their injuries within hours. Where discrepancies exist, I have tended to follow Gordon Thomas and Max Morgan Witts, The Day the World Ended (New York: Stein & Day, 1969), which is the most complete modern account; Fred M. Bullard, Volcanoes: In History, In Theory, In Eruption (Austin: Univ. of Texas Press, 1962) contains additional useful material.

From Fort de France, the governor's secretary, Edouard L'Heure, in his new role as acting governor, cabled Paris the first news of the disaster. International assistance was soon forthcoming.

The auxiliary cruiser Dixie reached
Fort de France on the morning of May 21st, dispatched from New York with a cargo of relief supplies by order of President Theodore Roosevelt. On board the Dixie were a Mr. Leadbeater, stereo photographer for Underwood & Underwood, and George Kennan, soon to be the author of the Underwood guidebook, St. Pierre and Mont Pelée Through the Stereoscope. In company with Professor Angelo Heilprin and others, they visited the ruined city and chartered the steam tug Ruby to cruise the coast; indeed, Heilprin and some companions who had gone ashore barely escaped on June 5th when Mont Pelée again erupted (View #5).

In addition to Underwood, all the other major companies—Keystone, Kilburn, White and W. H. Rau—were represented on Martinique. Together they produced several hundred fine views of the city, the volcano, and island life. Unfortunately, few if any of the stereographs show St. Pierre as it was after the May 8th eruption; on May 20th, Pelée again devastated the city, flattening almost everything the earlier blast had overlooked. A number of views of St. Pierre taken before the disaster were reissued; though far less common, these views by Underwood, Rau (View #1), and Kilburn provide an especially interesting contrast.

Besides St. Pierre, the photographers visited a number of villages such as Precheur (View #3) and Basse Pointe where the damage was far less extensive. Some also traveled to the neighboring island of St. Vincent, where the volcano La Souffrière had erupted on May 5th, spreading death and destruction on a smaller scale.

During late May and early June, Leadbeater took several stereo views of Morne Rouge (View #13); this attractive provincial town with its magnificent cathedral was destroyed by Pelée on August 30th. Keystone’s photographer was on the scene within hours to capture the grisly devastation (Views #14-15).

A number of boxed sets of up to 100 views apparently were produced by Underwood, White, and Keystone, some just of Martinique and others in combination with St. Vincent. One of the first issued was Underwood's 1903 set of 18 cards labeled Martinique; accompanied by George Kennan's guidebook, the individual cards are keyed to maps in the standard Underwood fashion. Mention should also be made of the Underwood 60-card set on Volcanoes & Volcanic Action, which contains a number of interesting views.

The destruction of St. Pierre by Mont Pelée was not the greatest volcanic eruption in history (those of Krakatoa in the Dutch East Indies in 1883 and Thera in the Aegean around 1450 B.C. were monstrous by comparison) or even the most famous (Pompeii's destruction by Vesuvius in 79 A.D. has that honor). But it is doubtful that any city and its people ever suffered a more complete annihilation than that of St. Pierre. By comparison the number of deaths in the Chicago Fire of 1871 and the San Francisco Earthquake of 1906 were only 250 and 450 respectively.

Perhaps the most intriguing feature of the St. Pierre disaster is that it was totally unnecessary. Pelée had provided an abundance of evidence that it threatened the city prior to May 8th. The real problem was political. With the chief strength of the Progressive Party among the urban populations of Fort de France and St. Pierre, evacuation of the city on the eve of the elections would almost certainly have guaranteed a Radical victory. This factor counted heavily in the thinking of the island’s rulers, thinking for which they paid an exorbitant price.

3The Thera or Santorini eruption, which is probably the origin of the Atlantis legend, destroyed the entire civilization of Minoan Crete and paved the way for the emergence of the Mycenaean Greeks of Homer.
New Aerospace Stereo TV System

(Editor's Note: The following article appeared the October 1975 issue of RCA TREND. It is published here by special permission of the Editor of RCA TREND, Mr. F. J. Stohl.)

A new method of displaying three-dimensional TV pictures for aerospace application that, for the first time, will permit distortion-free wide angle viewing, was described recently in Albuquerque, N.Mex. Speaking before the Institute of Electrical and Electronics Engineers Symposium on Applications of Ferroelectrics, Berton M. Soltoff, Program Manager, RCA Astro-Electronics Division, Princetown, N.J., described a new filter device that can be employed effectively to overcome the many problems previously associated with stereoscopic TV used in space. Mr. Soltoff is responsible for the Space Shuttle TV System at the RCA division.

Mr. Soltoff said the viewing system would be applicable for use in space exploration, rendezvous and docking of space vehicles, remote instrumentation control, and remote gathering of visual data.

The viewing system utilizes polycrystalline lanthanum-modified lead zirconate titanate (PLZT) filters and associated analyzers that are built into a pair of goggles worn by the viewer. The filters are actuated alternately by a power control unit that is in synchronization with the displayed video.

"In this manner," Mr. Soltoff said, "first one eye sees the monitor screen while the other eye is blocked, then the other eye sees the screen while the first eye is blocked."

"The switching of the views occurs so rapidly that it leaves the viewer with the impression of continuous three-dimensional screen image exposure for each eye."

Standard television receivers, he added, may be used with little additional equipment to produce the stereoscopic system.

"The system is particularly useful in cases where the viewer must observe both the monitor and other controls in performance of a task," he noted. "For example, an astronaut piloting a spacecraft which is to rendezvous and dock with another space vehicle may view a three-dimensional televised view of the docking structure and also be able to observe internal gauges and controls required in piloting the craft," he explained.

One of the major problems of existing aerospace stereoscopic television systems, Mr. Soltoff said, was the distortion of vision caused by looking away from the television display to perform other functions.

"This does not happen when the PLZT filters are employed," he said. The PLZT filter also is optically neutral so that it can be used to reproduce both color and monochrome stereoscopic images.

Bert Soltoff of the RCA Astro-Electronics Division demonstrates operation of new aerospace stereoscopic TV system. He is operating the controls of a remote manipulator while viewing the action on a TV monitor through RCA-designed stereo goggles using PLZT light gates. The stereo goggles can be used with either a color TV (right) or a black-and-white TV monitor (rear). (Photograph courtesy of RCA TREND.)
By Neal R. Bullington

In 1892, a pair of Montana men were hunting deer in a canyon between Whitehall and Three Forks. While resting beneath a limestone ledge, they noticed bats flying from a crevice above their heads. This hole led to a vertical drop of thirty feet, but they did not descend on this first visit. When one of them did return five years later with friends and equipment, he discovered a series of beautifully-decorated underground chambers. The necessity of breaking away stalactites to enter certain areas confirmed that they were the first humans to ever set foot there.

In 1902, a man named Daniel Morrison became Superintendent of the limestone quarry in the river valley below. He was told of the cave, became interested in it, and began to develop it. He installed stairs and a locked entrance door, and charged visitors $1 apiece for a tour. Naturally enough, people soon adopted the name, "Morrison Cave".

The site was public land and Morrison was unsuccessful in trying to patent a claim. In 1908, President Theodore Roosevelt signed a proclamation establishing Lewis and Clark National Monument, containing 160 acres. But the government did little to improve the facilities and Morrison stayed on as Custodian.

Another Presidential proclamation in 1911 recorded the official location of Lewis and Clark Cavern National Monument, following a survey by the General Land Office.

In the 1920's, a highway was built in the canyon below the cave, making public access really easy for the first time. It was during this period that N. A. Forsyth, a photographer with a studio at 120 N. Montana St. in Butte, began to produce and sell stereoviews of the cave. There are at least 42 different views known on grey curved cards, including one non-photo information card. Boxed sets were issued, but these labelled boxes contained only 25 or 30 views. Apparently they...
were issued over several years with some variation in labelling. The quality of the photography ranges from good to poor. Probably the most interesting view is one showing a group of “Seniors from the Montana School of Mines” taking a candlelight tour with their instructor.

The National Park Service finally decided that for various reasons the public interest would be best served if the cave was not in Federal ownership. In 1937 an Act of Congress conveyed the lands of the National Monument to the State of Montana.

At about the same time, a Civilian Conservation Corps was established nearby, and under Park Service direction, the C.C.C. workers spent thousands of man-hours blasting, tunnelling, installing steps, and constructing buildings. The result was Morrison Cave State Park; also known as Madison Cave State Park (after the Madison limestone formation in which the cave lies).

After being donated to the state, the park experienced further administrative shuffles under the State Park Commission, the State Highway Commission, and the State Fish and Game Department. In 1954 the area was formally dedicated by the Governor as Lewis & Clark Cavern State Park.

From a handful of explorers in 1898, to 15,000 visitors in 1946, to the more than 10,000 people who now visit the cave in a single year. And of those thousands who now enjoy their tour of the subterranean limestone halls, few suspect that they are visiting the “National Monument that didn’t make it”.

(The author is indebted to Charles R. Pease, Jr. for much of the information in the article.)
comment

SPOTLIGHT AUCTION

During the N.S.A. show in Canton, Ohio, in August, we are planning a unique photographica auction. We use the word "unique" because there has not been a similar auction before.

The auctions at most trade fairs, including ours, have been hastily put together with merchandise consigned signed by those present and sold informally. This year's N.S.A. auction will be divided into two parts: One part will consist of fifty very select lots with an illustrated catalogue to be distributed in advance of the show weekend. The second part of the sale will include material consigned the day of the auction.

The lots selected for inclusion in the fifty lot catalog will constitute our First Annual Spotlight Auction. These items will be selected from early, presale consignments, and will include fine quality materials from all areas of photographic collecting. An example of the quality of material in this auction is one lot already accepted - a fine stereograph of Abraham Lincoln, one of the rarest and most sought after of all stereo views. We also expect some fine stereoviewers, rare cameras, stereo views and other images.

The catalog for the Spotlight Auction will be distributed free to all N.S.A. members and mail bids will be accepted on the items as well as floor bids. Items will be on display, in glass showcases, the day of the auction. Names of owners of items will be included in the catalog. Prices realized will be published in "Stereo World."

If you have items you think would qualify for the Spotlight catalog, contact Rick Russack, who is handling auction details. The sooner the better. Criteria for inclusion will be interest of the items, condition, balance of the catalog and a reasonable reserve price. Reserves will be accepted and will be used as a starting bid. Items with unreasonable reserves will not be accepted, at our discretion. Commission rates will be 20% of the first $250.00 and 10% on balance, for each lot. Unsold items will be subject to a $10.00 fee for cataloging expenses.

This will be a prestigious event in a fine setting. Excellent media coverage is assured as this event is co-sponsored by the Canton Art Institute, and publicity in museum publications is expected. The catalog will contain only the finest items and it is to your advantage to have an item selected for inclusion.

Write to Richard Russack, R.F.D. #1, Fremont, New Hampshire 03044, for Spotlight Auction item submission forms.

* * *

"Some comments on the Viewer Feature in the last issue. I have an identical one! Complete with the brass escutcheons and molded glass knobs. The only difference is that mine lacks the ornate brass feet. I also have a damaged less ornate version.

"The viewer is meant to be double ended. A separate focusing lens set fits in the back. Mine is missing also, although it is included in the less ornate model.

"Page 75 of 'Victorian Photography' by Howarth-Loomis shows a viewer I would be inclined to think is by the same maker. It has a London Stereoscopic Co. label and he mentions 1858 as a date but I wouldn't be surprised if it was a bit later. In any event it clearly is English, probably by an anonymous cabinet maker."

Paul Wing, Hingham, Mass.

* * *

"If any of the members collect current Viewmaster packets they should not put off ordering. A recent list-mail order form shows about 150 deletions from a previous list about 2 years old. There are some new titles including reproductions of old Keystone View Co. stereoscopic views. (See Dave Laird's comment in the last issue). In ordering from Viewmaster its been my experience that some discontinued items are available for a short period. Some discontinued items are off the list only for a short period while a new "edition" is prepared. For example; some or all pictures may be changed and/or a new booklet printed.

"Quite a number of people misuse the word STEREOPTICON by applying it to stereoscopic items such as view cards, etc. So many that some newer dictionaries may so define the word. H.C. McKay, in writing for his Stereo Guild's Bulletin, "The Third Dimension" claimed that 'steropticon' properly referred to old time magic lanterns. He even published a copy of an old catalog illustration of a twin magic lantern used for dissolving view slide changing. No doubt such a set-up with a few changes such as the addition of filters could have been used for stereoscopic anaglyphic-type projection. Perhaps this is what led to the mis-use of the word STEREOPTICON?"

Robert W. Dahl, Racine, Wisc.

Editor's note: The following letter was recently discovered at the National Archives. It is taken from Microscopy 623 - "letters to Hayden."


Friend Hayden:

A friend of mine on a visit to my house from Col. (Dr. Jacobs) has taken a great liking to my stereoscope; I want to give it to him. Can you buy me another as good as cheaply?

If you paid more than I paid you, but hope not. If you can get me for a price not exceeding $5.00 and will do so I shall be much obligated to you and will gladly pay for it. Truly Yours,

A. A. Sargent.

This stereoscope is very clear and brings out the slightest things beautifully. I would like it by Wednesday. Excuse my pushing you.

On March 8, Sargent wrote to Hayden:

Dear Doctor:

I have hoped to find time to call on you and thank you for picking out the stereoscope for me, which I wanted for Dr. Jacobs. But I am too busy, so please accept my thanks and the enclosed price.

It may be noted that Hayden's appropriation was increased for 1872.

Holography

We have received a report of the opening of a new museum which has recently been established in New York City. It is called the Museum of Holography and is housed in a handsome old cast-iron building at 11 Mercer St., not far from Canal Street and Broadway.
Wonders of the Stereoscope—
John Jones

By Paul Wing

Wonders of the publishing world! Why do these things happen? How does the prestigious firm of Knopf arrive at a decision to produce an expensive cased set authored by an enthusiastic but uninformed amateur? I suspect astrology, witchcraft or rare personal magnetism on the part of Mr. Jones or some mutual friend.

The two volume set is handsomely slip cased in a box with a full color reproduction of a Claudet stereo daguerreotype portrait on the outside. Volume 1 consists of 125 pages, about half text plus many illustrations of stereo halves including a full plate of one half of each of 48 stereo views in Volume 2. Many of the early English views are in color.

Volume 2 contains the 48 stereo views and a poorly designed brown plastic viewer. For the money invested there must have been a way to design a better one! Infinity separation on the cards varies from under 60 to over 80 mm. The 23 mm lenses in the scope are set at 72 mm spacing and there is no real way to change focus. I can just see the average Christmas gift recipient fooling around and finally giving up in disgust.

The choice of subject matter and the accompanying text defy description. It ranges from Piazza-Smyth's Teneriffe Experiment and the early amateur photo clubs to the nudies of the 20's. How about a dissertation on the phallic symbolism of nude female statuary?

If someone knowledgeable had shown Knopf how to respace the old views in reproduction and had contributed a viewer design that worked, the set might have reached its goal as a gift for the carriage trade. For the collector it's a monument to what might have been. Read it and weep. You probably should put it on the book shelf when it comes out.

By Neal R. Bullington


Recently during a trip to the library, my 10 year old daughter pulled a book off a shelf and asked if we could take it home. It turned out to be American in 1876, and this chance discovery opened up for me a fascinating vista into the American past of a century ago.

Paperbound and 11" by 8" in format, it contains chapter headings such as "The Exhibition of 1876", "Washington," "The Western Empire", and "P.T. Barnum". When I saw these listed on the Contents' page, it immediately suggested stereo views. I wasn't disappointed. The many illustrations include newspaper engravings, paintings, posters, and ordinary photographs. But interspersed among them are at least 30 halves of stereo pairs. For some of these no photographer is mentioned, but others are attributed to such names as Jackson, Illingworth, Haynes and O'Sullivan. Even Sarver's "Mammoth Grapevine", recently featured in Stereo World, is there.

The book also contains a considerable amount of text, which includes contemporary writings along with modern commentary. Obviously published to capitalize on Bicentennial interest, this is a volume which will appeal to the history buff, the student of photography, and the stereo collector alike.

Preparation of a National Inventory of Photographic Archives

In co-operation with Canadian repositories, the National Photography Collection of the Public Archives of Canada is beginning the preparation of an inventory which will be published as a Guide to Canadian Photographic Archives.

This inventory will make it possible to index and describe individually all photographic archives collections in Canadian repositories. By referring to this publication, students, journalists, publishers, historians, and the general public will be able to enhance their knowledge of photographic records and determine whether a particular photographic archives collection will be of use to them in their research. Researchers will have only to contact the repositories concerned for further details.

Photo repositories accessible to the public have been invited to participate in the project. Contact: Alain Clavet, Co-ordinator, Guide to Canadian Photographic Archives, National Photography Collection, 395 Wellington Street, Ottawa, K1A ON3, (613) 992-3884 and 996-1612.

Come to Canton

Page Twenty-nine
The Unknowns

By John Waldsmith

Brandt Rowles and Tex Treadwell both identified the "Quaker City Expedition". Here is Brandt Rowles' comment on this view:

"Neal Bullington's "Unknown" in the March-April Stereo World is indeed the "Quaker City Expedition". Having examined the view after obtaining it on a trade, I find that it is a copy print typical of those issued in the mid-1870's. The view is very significant to a student of Mark Twain such as myself, because it was this voyage that gave Mark Twain the material for his book, "The Innocents Abroad".

"The Quaker City Expedition was the first American pleasure expedition to Europe and the Holy Land. The idea originated in 1867 in Henry Ward Beecher's church in 1867. To be allowed on shipboard required screening by a "merciless selection committee", as well as $1,250 passage. The voyage was advertised to include Rev. Beecher, General Sherman and the "Drummer Boy of the Potomac", but none were able to go. Mark Twain, the author of "The Celebrated Jumping Frog and Other Sketches", was the only genuine (minor) celebrity among the 76 passengers, who mostly were clergy, the wealthy, or newspaper correspondents. The trip lasted from June 8, 1867 to November 19, 1867, with New York City as the home port. Mark Twain's passage was paid by the "Alta California" newspaper, and he was to contribute columns based upon his travels. His travel letters to the Alta were later revised into "The Innocents Abroad" (a delightful book which I recommend to all).

"Mark Twain appears in this view. He is seen seated on the deck, almost in the lower center of the right image, behind the seated lady dressed in white. I am fairly certain that the gentleman with the fez who stands at the right of the left image is Dan Slote of New York. Mark Twain described him as "splendid, immoral, tobacco-smoking, wine-drinking, godless roommate". The bearded man seated to the right of the man wearing the cowboy hat, beard, and white coat in the center of the left image is probably Captain Charles C. Duncan. Captain Duncan ran the ship and later exchanged insults with Mark Twain in the newspapers. The man to the left of the white-coated man just described might be (I am not sure, here) Moses S. Beach, who owned the New York Sun. I am fairly certain that the woman in front of Dan Slote (left image only) is Mary Mason Fairbanks, correspondent for her husband's newspaper, The Cleveland Herald. I cannot identify any other people in this view.

"I do not know the photographer, nor why a copy print was made. Perhaps the sale of Mr. Twain's book raised enough curiosity that some enterprising photographer thought that there was money to be made from the stereoview."

The photographer of this view is identified as William F. James who also made a series of the Holy Land. For further information we suggest Dewey Ganzel's book Mark Twain Abroad where he describes the taking of this view and others.

It is exciting to identify one, unknown but we also heard from Dick Bradley and George Hood who both identified the Barton Flats and Seven Oaks views. Both sent maps to help locate the views. Here are their comments:

"The words 'Barton Flats' stuck out as the capitalized as I spent two weeks as a Boy Scout there. (Not too many years after the date on your view.) Barton Flats and Seven Oaks are both located in Southern California in the San Bernardino Mountains in San Bernardino County not far from Big Bear Lake." Dick Bradley, Santa Ana, CA. In addition to the above information, George Hood wrote "It is a very popular area for mountain cabins. I can remember my father considering building there in the twenties. We camped there for a week and spent the whole time looking at potential lots."

My thanks to those who responded. Here are some more unknowns for our members to try to identify. Douglas Smith of Falls Church, Va. has sent in two unknowns, both of which appear to be non-commercial. The first view shows a house by a bridge. It is on a grey mount and inscribed on the back "The Homestead". The other is a view of a large two story house plus another large house partly hidden by trees. It is on a square cornered yellow mount and inscribed "Park at Brandon." A 1851 Post Office list names "Brandon" in Mississippi, Michigan, Ohio and Vermont. Do we have any members who may be able to identify these unknowns?

Bob Cauthen of Leesburg, Fla. has sent in two unknowns. The view shown below is identified as being photographed by C.H. Colby of Meridith, N.H. Bob would like to know if any member may be able to identify the ornate clock and its proud owners. His other view shown at the right is a view of a Centennial Arch. Without making a confirmed identification, I believe this view was taken in Grand Rapids, Mich. It resembles views I have seen in two Michigan collections. Do we have members who may be able to help us further identify these views?
CLASSIFIEDS

WISH TO BUY in trade any stereo views of Boston and vicinity. Particularly interested in waterfront views. Charles Woolley, 132 Church St., Newton, MA. 02158.

WANTED

STEREO TISSUE CARDS, especially looking for set entitled "Diacobliques". Also any book sets on Austria, Switzerland, etc. Also looking for a Rotographoscope. W. K. Smythe, 316 Clyde St., South Granville, N.S.W. Australia 2142.

WANTED: Stereo Views. Calif. & North or South West. Also early photographs of western scenes. Railroad, Indians, nudes. Wanted: Good daguerreotypes, Ambrotypes. We buy, sell or trade. Alex Primeau, 3382 18th St., San Francisco, CA 94110. 415-864-5966.

Standard Terms

VIEWS

An "Excellent" view is a clear, sharp image on a clean, undamaged mount. "Very good" is used to describe a view slightly less perfect than the above. There will be no major defects in the view or mount. A "Good" view is in average collectable condition. An image may be slightly faded, corners may be rubbed or the mount may be stained. Please state if views have folded or damaged mounts.

CAMERAS

"New" — Equipment as shipped from the manufacturer. "mint" — 100 per cent original finish, everything perfect, in new condition in every respect. "Excellent" — 80 per cent to 100 per cent original finish, similar to new, used little, no noticeable marring of wood or leather, little or no brassing, lens clean and clear, all mechanical parts in perfect working order. "Very good" — 60 per cent original finish, item complete but wood or leather slightly scratched, scuffed, or marred, metal worn but no corrosion or pitfalls. "Good" — 45 per cent original finish, minor wear on exposed surfaces, no major broken parts but may be in need of minor replacement parts, metal rusted or pitted in places but cleanable, leather scuffed and/or aged. "Fair" — 25 per cent original condition, well used and worn, in need of parts replacement and refinishing.
PLEASE CHECK your stereo cards and early views of Upstate New York. Especially want Spencer, Spencer Springs, Trumansburg, Taughannock Falls and other upstate areas. Buy or trade, if possible. Joan Cooke, Anderson Dr., R.D. 2, Homer, N.Y. 13077.

WANTED: Views of the moon or other astronomical bodies, views picturing astronomical telescopes, observatories. Chalifan, 3409 Sunnyview Dr., Alexandria, VA. 22309.

STEREO VIEWS: Germany, British Isles, Scandinavian countries, Japan, China and Risque material. Prefer good mint cards or sets. Also interested in stereo cards and viewers; and stereo views by Anthony. Wesley L. Kase, 37167 Orchard, Apt. 61, Westland, Mich. 48185.

WANTED: Stereo views and other interesting photographs wanted. Will pay your price or trade from 10,000 stereos. Dave Tinter, 327 Minnesota, Troy, Mi. 48084.

WANTED: Good western, Indian, etc. stereos and single photos, especially by Benjamin Wittick, Steve Steele, P. O. Box 3459, El Paso, TX 79923.


WANTED: Magic lantern manuals, readings and trade catalogues, also 4 x 7 wood, framed mechanical and dissolving slides. David Brooke, 365 Ray Street, Manchester, N.H. 03104.

HELP! Need following: Key. 600 Travel #208; Key. 300 Scenic America #5, #212; Sears Litho #12; UU 45 Panama Canal #34, 41, 43, UU 100 1904 WLD Fair #34. Jim Benton, 3242 Sawtelle 2, Los Angeles, CA 90066.


WANTED: Keystone W.W. 1 views of the 300 series: #14, 15, 43, 59, 70 (with no center #s on front). L. Shannon, Box 71, Cheltenham, Pa. 19012.


FRENCH DIORAMA tissue views of Operas, Ballets, Fairy stories, yellow embossed mounts by B.K., preferred. Buy or trade-singles or sets. Correspondence welcome on this subject. Have must info to exchange. Paul Wing, 12 Weston Rd., Hingham, Ma. 02043.

WANTED: Pre-1900 CALIFORNIA items. Also books illustrated with original photographs. Louise Fielder, 46 Almendral, Atherton, CA. 94025. (415) 366-8850.
WANTED C.E. WATKINS. Please list views offered according to his numbers and enclose SASE. Esp. his Columbia River, Arizona, Salt Lake City, San Francisco & Mining series’ W.J. Naef, 155 Wooster St., New York, N.Y. 10012.


WANTED: Any good stereo views of West Virginia. Prefer stereo photos but will consider stereo lithos. Julius E. Jones, Jr., 90 Oakford Ave., Richmond, W.V. 26261. Tel (304) 846-6959.

ANY WESTERN photography and California books. Send your wants will trade. Douglas Antiques, 1H Main Street, Jackson, CA. 95642.

INDIANS, outlaws, early western towns, paddle wheel boats, Indian scouts, circa 1870-1880s. Also non-stereo photos. T. Law, 30 Manee Ave., Staten Island, N.Y. 10309.

WANTED-Views of Negros; Western Virginia; old stringed bands; showing instruments—banjos, fiddles, guitars, mandolins; also buy old instruments. Henry Heckler, Buchanan, VA. 24066.

WANTED: Baltimore & Maryland, Lincoln, Circus (Midgets, wirewalkers, Barnum, etc.). A. Seidman, 59 Caraway Road, Reisterstown, MD. 21136.


CALIFORNIA and other Western stereos; especially Yosemite, S.F., San Jose, etc. and Watkins, Soule, Muybridge. Have Watkins, Soule Yosemite for trade. Will buy large lots. Lou Smaus, 668 Oakwood Ct., Los Altos, Ca. 94022.

WANTED: Keystone views H17, H161, H211, H243 & H254. Also views of Moon or other astronomical bodies. Buy or trade. John Steffen, 573 King St. E., Oshawa, Ontario, Canada, L1H 1G3.

STEREO VIEWS, photos, CDVs by Ranald Douglas of Livingston, N.J. Also, stereo view of Roger’s Groups (Statuary). Don Lowy, 29 Lincoln Ave., Livingston, N.J. 07039


ALWAYS WANTED—Stereo views of California, Nevada, Hawaii and Alaska. Also aviation. Also buy old post cards, express company paper, stock certificates and railroad passes. Please write! Ken Prag, Box 5115WW, Burlington, CA 94010.

GLASS STEREOS, tissues before 1900. Also Pasadena Rose Parade, Centennial, Columbian Expositions, pre 1930 autos. Pay from 50¢ to $10. each for very good to excellent views. Check sent same day. Kirk, 23621 Anza, Torrance, CA.

WANTED: A view of Old ‘Pepper-’ on the tramway up Mt. Washington to complete my views of engines used there. Also any of Swaine’s views of Malden, Mass. Freeman F. Hepburn, 30 Montrose St., Malden, Mass. 02148.

WILL PAY $7-10 for Norwich, Conn. street scenes I don’t have. Am writing a book, Norwich thru the Stereoscope. I need more material. Please help. Matt Isenberg, C/O Simon Ford, 401 No. Main, Norwich, Conn. 06360.

WANTED: View of the Clara Barton House (Red Cross Headquarters) at Glen Echo, Maryland. Will buy or have some trade views. Neal Bullington, 137 Carman St., Patchogue, N.Y. 11772.


WANTED: Stereo views of Michigan, especially Battle Creek; Wisconsin, especially Milwaukee, Madison; upper Mississippi area. Also interested in Utopian communities; old homemade views. Judith Callan, 116 E. Gilman, Apt. G-5, Madison, Wisc. 53703.


FOR SALE
Curved mount stereo views. Mixed lots of 100 views $50.00. All different. All foreign. Mostly U & U. You may also order smaller or larger sized lots at the same price. Lots by countries—Japan @ $1.00, China @ $1.00, Russia @ $1.00, India, Burma, Ceylon, South Africa @ 85c. All other countries at 65c.

All the above views are in V.G. condition or better. We also have many incomplete boxed sets for which we are asking 75¢ per card, with box. Also U & U books: Italy, Norway, Greece, South America, Japan, $1.00 each.

STEREO-MANIA
Box 324
Green Lake, WI 54941

STEREO LIST
Includes:
Stereo Views, CDVs, Cabinet Cards, Prints and Stereo Hardware.

1 Illustrated Catalogue $1.00
3 Illustrated Catalogues $2.50

Roberta Etter
P.O. Box 35156
Tulsa, Okla. 74135
(Other lists also available.)
STEREOVIEWS
Keith de Lellis
PHOTOGRAPHIC ANTIQUES & ARTIFACTS
DALEWOOD ESTATE - Antique Stereoviews and More
108-49 63rd Ave
Forest Hills, N.Y. 11375
Phone: (212) 830-0062

1. ALASKA, Klondike Gold Fields, Keystone, 910. Exc. $4.00
2. CANADA. Two views, Cathedral (street scene), Place de Armes. Illusions & Co. Very Good. $12.00
3. CHICAGO FIRE. Five views, by P. B. Greens and W. E. Bowman, Good. $22.50
4. CHINA. Great 1860's view of a group of Sailors in Canton. Exc. $22.00
5. CIVIL WAR. Super historical view of Gen. Grant writing a dispatch. No. 739 by O'Sullivan. Raw. $100.00
6. ENGLISH. Group of six quality genre views. Includes view by London Stereoscopic Co. Very Good. $16.00
7. ENGLISH. Set of six views-The Hero's Wife, London Stereoscopic Co. Great. $45.00
8. FIJI. Two views, Jerusalem and Avenue at Inverary. Very Good. $12.00
9. INDIANS. Great portrait of Old Bets. By Whitney & Zimmerman. Exc. $25.00
10. MEXICO. Popocatapetl, from America-america, Mexico. Kilburn 1144. Exc. $6.00
11. MILWAUKEE. State Bank Building, Yellow mount. No identification. Exc. $3.00
12. THE MOON. Spectacular early view by Rutherford's Telescope. London Stereoscopic Co. Exc. $35.00
13. NEW ORLEANS. Saint Charles Hotel and Street. By Blissong. Exc. $4.50
15. N.Y.C. Anthony buff mount of the Worth Monument. Exc. $6.50
16. N.Y.C. Nice docksides view of Shipping on the East River. Anthony. Good. $10.00
17. N.Y.C. Great view of Base Ball Day in Central Park. Entroth. Exc. $12.00
18. N.Y.C. Early Barnum view of the Fifth Ave. Hotel. Exc. $15.00
19. N.Y.C. Two views of Lake George by Barnum. Very Good. $7.50
20. N.Y.C. Captured Mexican Mortars, West Point. By Soule. Exc. $4.00
21. NIAGARA FALLS. Two early views, One E. Anthony, and N.Y. Stereoscopic Co. Good. $17.50
22. NIAGARA. View of the Museum, Canada side. Unusual. Anthony. Exc. $4.00

PLEASE INCLUDE POSTAGE ON ALL ORDERS. SEND STERE0 AND OTHER PHOTOGRAPHIC WANTS. WE ARE INTERESTED IN BUYING AS WELL AS SELLING EARLY PHOTOGRAPHIC. SEND NAME AND ADDRESS TO RECEIVE CATALOG ISSUED FOUR TIMES A YEAR. THANK YOU.

keith de lellis
108-49 63rd Ave.
Forest Hills, N.Y. 11375
(212) 830-0062

Page Thirty-five
Viewer Feature

CAMERA CHIEF

By inserting a penny and pushing in the plunger on the front of the box, 9 different stereo views can be seen through the lens. A battery inside provides the power for the light source, and the views are on a strip form, which can be interchanged for different subjects.

Do we have any members with a similar viewer or information on this 1¢ viewer?

EVENTS

The Ohio Camera Collectors Society will hold its annual three-day trade fair on May 28, 29 & 30 in Columbus, O. Information is available from O.C.C.S., P.O. Box 282, Columbus, O. 43216.

The Photographic Historical Society of the Western Reserve will hold their 6th Annual Trade Fair on July 30 & 31. For additional information contact P.H.S.W.R., P.O. Box 21174, South Euclid, Ohio 44121.

The National Stereoscopic Association will hold their first independent show, PHOTO SHOW '77 on August 27 & 28 at the Canton Art Institute, Canton, Ohio. This show will receive co-sponsorship from the Photographic Historical Society of America. The show will feature a trade fair with over 100 dealer tables, competitive member exhibits, 3-D visual programs, and a mail/floor bid auction sale with illustrated catalogue. In conjunction with the show will be the opening of an exhibit of the binocular works of Connie Hitzeroth in the Art Institute's Photography Salon. This is projected to be the largest photographica show of the year. Further details will appear in the next issue of STEREO WORLD.

The Chicago Photographic Collectors Society will hold their Show on Sept. 10 & 11 at the Sheraton O'Hare, Des Plaines, Ill. Contact C.P.C.S., P.O. Box 375, Winnetka, IL 60093.

(Editor's note: This column is offered as a free service to help keep our members informed of coming events in the photographica field.)

6S2 65 X 10mm Viewer & Glass Views (French)-Made of cardboard w/wood eyepieces in original carton. Includes 4 boxed sets of 12 views each. The generation of Reims & Chartres. All in Exc. Cond., crack in one wooden eyepiece ring, $35 plus $2 ship.

6S3 Revolution of Palermo-A remarkable set of 10 stereo views showing ruins & barricaded streets. This revolution coincided with Garibaldi’s arrival in Sicily in early May 1860. The ensuing battle was won by Garibaldi’s troops by the beginning of June 1860 & marked the beginning of the unification of the Italian States. We know of no war views associated with this battle. Each view is mounted on crude white card mats, w/printed labels on the reverse in French. Each card is dated May 29 or June 2, 1860. Many of the views, especially those showing barricades are quite dramatic war scenes. Some mounts are a bit battered, but the average condition of the views is G. An extremely rare & important set of views. $175 PP.

6S4 "North Victoria Bridge, Montreal, Canada". An early London Stereoscopic Company-5 early views of Canada from "North Victoria Bridge, Montreal, Canada". An early London Stereoscopic Company-5 early views of Canada from average condition of the views is G. An extremely rare set of views. $175 PP.

6S5 "S.S. Revolution of Palermo-A remarkable set of 10 stereo views showing ruins & barricaded streets. This revolution coincided with Garibaldi’s arrival in Sicily in early May 1860. The ensuing battle was won by Garibaldi’s troops by the beginning of June 1860 & marked the beginning of the unification of the Italian States. We know of no war views associated with this battle. Each view is mounted on crude white card mats, w/printed labels on the reverse in French. Each card is dated May 29 or June 2, 1860. Many of the views, especially those showing barricades are quite dramatic war scenes. Some mounts are a bit battered, but the average condition of the views is G. An extremely rare & important set of views. $175 PP.

6S6 "North Victoria Bridge, Montreal, Canada". An early London Stereoscopic Company-5 early views of Canada from "North Victoria Bridge, Montreal, Canada". An early London Stereoscopic Company-5 early views of Canada from average condition of the views is G. An extremely rare set of views. $175 PP.

6S7 London Stereoscopic Company-5 early views of Canada from this scarce series. Included are two panoramic views of Montreal, a view of the newly completed Victoria Bridge, a view of Quebec & the Citadel including the H.M.S. Hmlyas "awaiting the embarkation of troops" & a view of the Rideau Falls, Ottawa. c.1860 in V.G. to Cond., $53 PP.

6S8 London Stereoscopic Co.-The Niagara Suspension Bridge. A very nice view showing the famous suspension bridge over the Niagara River, June 30, 1859. A rare tinted view looking down the river. Some light spotting does not detract from the image. G. Cond., $25 PP.

6S9 London Stereoscopic Co.-Blondin’s tight rope feat crossing the Niagara River, June 30, 1859. A rare tinted view looking down the river. Some light spotting does not detract from the image. G. Cond., $25 PP.

6S10 London Stereoscopic Co.-Blondin’s tight rope feat crossing the Niagara River, June 30, 1859. A rare view looking across the river & showing the crowds in G. Cond., $22 PP.

6S11 London Stereoscopic Co.-An instantaneous view of the rapids at Niagara V.G. Cond., c.1860, $8.50 PP.

6S12 London Stereoscopic Co.-A really outstanding view of the icebergs at Niagara w/a silhouetted figure in the foreground in V.G. Cond., c. 1860, $14 PP.

6S13 London Stereoscopic Co.-A lovely view of the Horsehoe Fall, Niagara in Exc. Cond., c.1860, $10 PP.

6S14 Bierstadt, C.-A fine view showing a man in a boat silhouetted against the sunset, Niagara. In V.G. Cond. on orange mt., $3.50 PP.

6S15 Prospect Point, Niagara Falls. A birds-eye view of the point that includes the photographic pavilion (originally Babbitt’s) & a camera. Unlabelled orange-mt. G. Cond. $5 PP.

6S16 Prospect Point, Niagara Falls pavilion. No. 6015, E. & H. T. Anthony. A great view of the pavilion w/sign, "Photographic & Stereoscopic Views of the Falls.", legible w/magnifier. Camera in pavilion w/additional one outside on a tripod. Photographers lean against fence. V.G. Cond., $8 PP.


6S18 Another lot--2 near Patterson (when New Jersey was rural). In G. Cond., $15 the pair.

6S19 "Mountains Cave, near Saint Paul". A yellow mt. view by Illingworth in V.G. Cond., $6 PP.

6S20 "New York Stereoscopic Co. A cream mt., tinted, "Old Mill at Sing Sing, N.Y."). Covered bridge & mill, in V.G. Cond., $8 PP. Scarce by this early maker, $35 PP.


6S22 "Bermem, A later green mt., "Uncle Sam at West Point", Cadet stands next to cannon & cannon balls. Rare adv. back describes Barmem’s photograph rooms in Cortland, NY. In G. Cond., $4 PP.

6S23 Iowa-"Two orange Imperial mt. views by Reynolds & Co., Harlan, Iowa. "Opera House, Harlan, Iowa. A three story brick bldg. on an unpaved street. The second, "Iowa State Capital, Des Moines, Iowa", birds-eye view of the impressive gold-domed bldg. Predominant foreground is a wood bldg. w/"Meeker House" sign. Streets also appear to be unpaved. Both in V.G. Cond., $6 PP.


6S25 Remapping Black River, Watertown, NY. Early view of river engulfing stone mill. In V.G. Cond., $4 PP.

6S26 Fulton (NY) & Vicinity by Beals. A hand tinted orange back imperial mt.s: one of a bridge, the other two of the Congregational Church in Oswego Falls. G.-V.G. Cond., $3 PP.


6S28 Florida-14 Imperial-sized mts. in orange & yellow. Commercially issued views by one publisher/photographer name. Includes one view of alligator sunning himself on the bank of the St. John's river. All in V.G. Cond., $25PP for the lot.

6S29 Thousand Islands, NY by McIntyre. Three scenic views on the St. Lawrence river. Two Imperial mts. of Big Game Hunting expeditions in Wyoming, c.1860, Views & of hunters Big Game Hunting-A series of 5 grey-mt. privately made imperial mts.; one of a bridge. the other two of the Congregational Church in Oswego Falls. G.-V.G. Cond., $3 PP.


6S33 Granite Quarry-Private stereo-view of what appears to be a mountain of stacked granite blocks next to railroad tracks. Derrick in background is stacking block. In G. Cond., $6PP.

6S34 Riverboat-A typical southern riverboat w/passengers & crew posing above decks. Black laborers pose w/cargo on deck. In V.G. Cond., $12 PP.


6S37 Negros. 4 orange imperial mts. by various southern photographers: Cutting sugar cane, w/on team, picking cotton & w/orange trees. G.-F. Cond., $10 PP for the lot.


6S39 "Blessing Little Children". White preacher "blesses" two young negro lads. In V.G. Cond., $3PP.

6S40 Big Game Hunting-A series of 5 grey-mt. privately made views of big game hunting expeditions in Wyoming, c.1906. Views of hunters & their game; longhorn sheep, moose, deer & grizzly. All in V.G. Cond., $15 PP.

6S41 Kilburn-2 good views of the Mount Washington railray showing a train ascending the mountain in one & men descending in a hand car in the other. c.1900, G.-V.G. Cond. $6.50 PP.

6S42 J. Gurney & Son. 3 cream-mts. of actresses, VGC $10 for the lot.
OFFERING FOR SALE

STEREOGRAPHS
BY
H. H. BENNETT

Send for Catalogue listing complete stereo subjects. Published by Henry Hamilton Bennett (1865 thru 1908)
Listed by title and number. $2.50 (Includes postage in U.S. Add .25 outside of U.S.)
A valuable reference book never published before.

PLUS

Slip in price list of available Stereographs for sale by The Bennett Studio.
473 subjects, all un-circulated and in mint condition...
SUPPLY IS LIMITED...
Orders filled in order of earliest post mark.
Also
A list of Stereographs wanted by the Bennett Studio for which we will pay from $10.00 up to $150.00 depending on condition.

The Bennett Story

Brief History of H.H. Bennetts Life and Works (11 illustrations)
WRITTEN BY BETSY REESE, GREAT GRANDDAUGHTER OF H.H. BENNETT.

SPECIAL OFFER TO NATIONAL STEREOSCOPIC MEMBERS ONLY!

Each book ordered will be autographed by Ruth Bennett Dyer, daughter of H.H. Bennett (Age 82).

Price...$1.25 Postage Pd. ... add .25 outside the U.S.

ENLARGEMENTS SUITABLE FOR FRAMING

Just send us the number of your favorite Bennett Stereographs along with a Self Addressed Stamped Envelope for prices and styles. Your favorite Bennett Stereo will be printed from the original glass negative in 8 x 10, 11 x 14, 16 x 20 or wall size mural.

Send to:
THE H. H. BENNETT STUDIO
P.O. Box 145
Wisconsin Dells, Wisconsin 53965

Stereograph Catalogue — $2.50
The Bennett Story $1.25