

Journal

AMERICAN COLLEGE OF DENTISTS

In This Issue:

Life and Letters of Horace Wells (Discoverer
of Anesthesia) *W. Harry Archer*

A Reading from the *De Humani Corporis
Fabrica* of Andreas Vesalius
. *J. B. DeC. M. Saunders and C. D. O'Malley*

American College of Dentists:
Socio-Economics *George W. Wilson*

Published Quarterly for General Circulation by
THE AMERICAN COLLEGE OF DENTISTS

Journal

AMERICAN COLLEGE OF DENTISTS

Presents the proceedings of the American College of Dentists and such additional papers and comment from responsible sources as may be useful for the promotion of oral health-service and the advancement of the dental profession. The Journal disclaims responsibility, however, for opinions expressed by authors.

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Address of the Editor:

JOHN E. GURLEY, D.D.S., 350 Post Street, San Francisco, 8, California

Assistant Editor:

E. G. MEISEL, D.D.S., 121 University Place, Pittsburgh, 13, Pa.

Journal Committee: Willard C. Fleming, E. G. Meisel, W. N. Hodgkin, *chairman*

AMERICAN COLLEGE OF DENTISTS

Objects: The American College of Dentists "was established to promote the ideals of the dental profession; to advance the standards and efficiency of dentistry; to stimulate graduate study and effort by dentists; to confer Fellowship in recognition of meritorious achievement, especially in dental science, art, education and literature; and to improve public understanding and appreciation of oral health-service." — *Constitution, Article I.*

Announcements

Next Meeting, Board of Regents: Omaha, Neb., Oct. 12-13, 1944.

Next Convocation, Omaha, Neb., Oct. 12, 1944.

Fellowships and awards in dental research. The American College of Dentists, at its annual meeting in 1937 [*J. Am. Col. Den.*, 4, 100; Sep. and 256, Dec., 1937] inaugurated plans to promote research in dentistry. These plans include grants of funds (The William John Gies Fellowships) to applicants, in support of projected investigations; and also the formal recognition, through annual awards (The William John Gies Awards), of distinguished achievement in dental research. A standing committee of the International Association for Dental Research will actively cooperate with the College in the furtherance of these plans. Applications for grants in aid of projected researches, and requests for information, may be sent to the Chairman of the Committee on Dental Research of the American College of Dentists, Dr. Albert L. Midgley, 1108 Union Trust Bldg., Providence, R. I. [See "The Gies Dental Research Fellowships and Awards for Achievement in Research," *J. Am. Col. Den.*, 5, 115; 1938, Sep.]

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American College of Dentists

BERNARD said: "Literary and artistic productions never grow old, in this sense, that they are expressions of feeling, changeless as human nature. We may add that philosophical ideas stand for aspirations of the human spirit which are also of all time. But science, which stands for what man has learned, is essentially mobile in expression; it varies and perfects itself in proportion to the increase of acquired knowledge. Present day science is therefore necessarily higher than the science of the past; and there is no sort of reason for going in search of any addition to modern science through knowledge of the ancients. Their theories, necessarily false because they do not include facts discovered since then, can be of no real advantage to contemporary science.



CLAUDE BERNARD

ence. No experimental science, then, can make progress except by advancing and pursuing its work in the future. It would be absurd to believe that we should go in search of it in the study of books bequeathed to us by the past. We can find there only the history of the human mind, which is quite another matter."

Horace Wells
Discoverer of
Anæsthesia.

Anno 1844



DR. HORACE WELLS

DR. HORACE WELLS

The copy of the life-sized portrait of Dr. Wells on the preceding page, painted by Charles Noel Flagg, hangs in the lobby of the Wadsworth Atheneum in Hartford, Conn. In the *Hartford Daily Courant* for November 25, 1899, is the following news item:

"In presenting his portrait of Dr. Horace Wells, the discoverer of anesthesia, Mr. Flagg wrote as follows:

"THE REV. FRANCIS GOODWIN,

"President of the Wadsworth Atheneum.

"Dear Sir—I take pleasure in presenting to the Wadsworth Atheneum, through you and your associate trustees, a portrait of the late Dr. Horace Wells, painted by me and actuated from the first stroke of the brush by the hope that in the place for which I have destined it, it might make friends for one of the most unfortunate and one of the greatest men who ever lived. The head was painted from a daguerreotype which Dr. Wells took of himself when experimenting with the process, shortly after its invention by Daguerre. The pose was suggested by a silhouette by Dr. Wells, now in the possession of his son, Mr. Charles Wells. In the cut and color of the costume I have been guided by my father's description of what he and Dr. Wells wore at the time when they were contemporary and intimate friends. I am prompted to give this picture to the Atheneum by a profound regard for the man who was able through his genius to prove his life for mankind by the greatest gift ever bestowed by a human being upon his fellows. I am further prompted by a desire to co-operate in the small way possible to me in the effort of the trustees of the Atheneum to make its picture gallery more interesting to the people of Hartford.

"I am, dear sir,

"Yours with great respect,

"CHARLES NOEL FLAGG."

LIFE AND LETTERS OF HORACE WELLS
DISCOVERER OF ANESTHESIA

CHRONOLOGICALLY ARRANGED

W. HARRY ARCHER, B.S., D.D.S., *Pittsburgh, Pa.*¹

1815 —

On January 21st of this year Horace Wells was born at Hartford, Windsor County, Vermont.² He was the first child of three, born to Horace and Betsey Heath Wells.^{2a} (1)(2)(3)(6)

Horace Wells descended from true New England stock. His ancestors were among the earliest settlers of Vermont. His grandparents were Captain Hezekiah Wells and Sarah Trumbull of Windsor, Connecticut. Capt. Wells served with honor in the American Revolution and was prominent in the affairs of his state. Horace's early life was ideal, for his father owned a large and valuable farm situated near the Connecticut River. The parents of young Wells were intelligent, and, for that region, wealthy; and being able, gave their children every advantage for moral and mental development.

1817 —

Brother Charles was born on June 22nd. He became a prominent physician.(3)

1818 —

Family moved to Westminster, Vermont, just below Bellows Falls on the Connecticut River.(1)(3)

NOTE: *Figures in parentheses refer to references at the end of this article.*

¹Associate Professor and Head of the Departments of Oral Surgery and Anesthesia, School of Dentistry, University of Pittsburgh; Chairman, History Committee, American Dental Association; Chairman of Horace Wells Centenary Committee, Pennsylvania State Dental Society; Member of Horace Wells Centenary Committee, American Dental Association, and American Society of Anesthetists.

²Mr. William S. Pingree, Town Clerk of Hartford, Vermont, informs me "that the record of our vital statistics of this town do not cover any birth or deaths prior to 1854. There was no law in Vermont concerning the records of vital statistics prior to that date." Hence, the date of birth was obtained from his first biographer(1) and checked with replies from descendants and the data on Horace Wells' grave marker. Horace Wells' birthplace still stands. See the illustrations.

^{2a}Married June 21, 1810. A beautiful clock and sideboard which were wedding presents are in the possession of Mrs. A. W. Cole.

1819 —

Sister Mary was born on September first. (3)

1820—

In 1820 Horace Wells Sr. sold his three hundred and twenty (320) acre farm and moved his family into Bellows Falls where he conducted the first Grist Mill in this section, which was located at the mouth of Saxtons River.

He had the "First Smut-mill" in this vicinity, according to an advertisement in the "*Intelligence*" of July 21, 1821. The advertisement states: "This machine cleanses the grain not only from smut but from cockles, seeds of weeds, and other foul matter."

Hence we see that as a young boy Horace was brought into close contact with new and improved mechanical devices. This early environment had an influence which was to manifest itself throughout his life.

1821-1828 —

Horace attended select schools for twelve years; boys' private school for one year with Mr. Ballard at Hopkinton, New Hampshire; academies at Amherst, Massachusetts, and Walpole, New Hampshire.

1829-1833 —

Horace Wells' father died on April 5, 1829 at the age of 53. (Born June 22, 1776.) His mother, Betsey Heath Wells, married again, this time to a widower with four daughters and three sons, Mr. Abiather Shaw, Jr., on November 2, 1830.

Mrs. Betsey Heath Wells Shaw and her three children, Horace, Charles and Mary, now moved into Mr. Shaw's large and beautiful home in Westmoreland, N. H.^{2b}

Here the children continued their schooling. Horace became a teacher for one district after completing his education and because of his fine penmanship, he taught writing in several schools. He was profoundly affected by the death of his father, whose characteristics

^{2b}This house, too, is still standing, in good preservation and is occupied by Mr. and Mrs. George E. Sewall. Mrs. Sewall when digging in her wild flower garden a few years ago "found a brass stencil pattern that had 'H. Wells' on it . . ."

he had inherited, and at one time he contemplated entering the ministry.

However, this idea was short lived and instead he, for reasons which are still unknown, decided to study dentistry. Perhaps he obtained the idea from the travelling dentists who stopped at his father's home in Westminster which was also "used as a Hotel^{2c} for 'entertainment' of the stages and freight teams which passed up and down the Connecticut valley." (22)

It is quite possible that Horace Wells was a "travelling dentist" before he settled in Hartford, Connecticut. This theory is substantiated by the following statement by A. M. Albe: "Young Horace Wells became a dentist and about nine years after father (Ellery Albe) bought their farm . . . He travelled from place to place to do the work in his line, and coming to my father's Hotel, filled six cavities in my mouth with gold, when I was only twelve years old." (22)

1834-1838—

In 1834 Wells, at the age of nineteen, went to Boston to study dentistry by association with leading dentists of that city. This was six years before the first dental school, The Baltimore College of Dental Surgery, was organized. At this time, without regular dental schools and colleges and before state supervision was introduced, the only preparation was a period of apprenticeship in the office of a recognized practitioner. Even this was optional with the would-be dentist. Many set themselves up as dentists with no preparation. Wells, however, tried to get the best possible professional education at that time after which he opened an office in Boston. During his stay in

^{2c}This house is also still standing and occupied. It was extremely interesting for me to find that these three houses, in which Horace Wells was born and then lived during his childhood and youth, were still standing. It is to be regretted, however, that the "cottage" that Horace Wells built for his new bride, in Hartford, Connecticut, and in which his only child, a son, was born, has been torn down. This should have been preserved as a shrine to one of mankind's greatest benefactors. The spot on which Dr. Wells' house stood has been located and this year at the 100th Anniversary of the discovery of anesthesia a plaque erected on this spot will be unveiled. Plans should be made for the preservation of the house in which Horace Wells was born and the other two in which he spent his youth.

Boston, he became acquainted with medical men there, a fact which probably influenced him in seeking medical assistance in Boston rather than in New York at the time he first announced his discovery.(1)(2)(4) Subsequently on a trip to New York he did discuss anesthesia with some of the medical men of that city.

There are still many unanswered questions concerning the life of Horace Wells, but the one big question which so far has not been answered is: Who did Horace Wells study dentistry with? Below are several letters from Horace Wells during his stay in Boston when presumably he was studying dentistry, and yet in these letters he doesn't mention a word about dentistry. In his first notice in the Connecticut *Courant* on April 4, 1836, announcing the opening of an office for the practice of dentistry in Hartford, there is included a "testimonial" by a patient, to the effect that he "employed Dr. Wells, while in Boston, in an operation on my teeth. . . ." It was customary in those days for the established practitioner of dentistry, under whom the apprenticed dentist worked and studied, to state in the initial advertisement of the embryo dentist, when the latter opened his own office, that the undersigned dentist had studied dentistry with him and was well qualified, etc. A search of the Boston Atlas for the year 1835 was undertaken in a quest for an original advertisement of Dr. Horace Wells without results. Furthermore, the directories for Boston of 1834, 1835 and 1836 do not include the name of Horace Wells, either as a resident or a "dentist," or a "surgeon-dentist." The four men so designated are: T. W. Parsons, W. F. Flagg, N. C. Keep and D. Harwood.

Dr. N. C. Keep, who was thirty-six years old at the time Horace Wells was presumably studying dentistry in Boston, had built up a wide reputation for proficiency in the mechanical dental art. Horace Wells' parents were able to give their children the best and it might well be that Wells was apprenticed to Dr. Keep. In 1868, when Dr. Keep was sixty-eight years old, he was made Dean of the newly organized Dental School of Harvard and was Professor of Mechanical Dentistry.

Here follows the series of letters previously mentioned, that

passed between Horace Wells, members of his family and friends, the first being addressed to his stepfather, Mr. Abiather Shaw, Jr., Westmoreland, N. H.³

"Boston, Nov. 21, 1835.

"Dear Parents:

"I have at last received a line from you, which I perused with much pleasure, the only fault I can find with it is its shortness, but I must put up with that as I have set the example. I have just received a line from Charles. It was written however, before he went to the north, he writes no news in particular, excepting that a young lady of our acquaintance had gone the 'way of all the earth' the last time that I saw her which was but a few weeks since; she was blooming in health and doubtless anticipating a long life to come. How true is the sentiment of that poet who says 'men think all men mortal but themselves,' that is, we can contemplate with composure the fatality of mankind, but deem ourselves secure from the arrow of death at present, and the time is far distant when that important self will be counted among the dead, so thought a lady yesterday morning who was doomed to be burned to death last night in her own house. I was at the fire, it was surely a solemn sight to witness the despair of those who were turned out of house and home. The lady that I have referred to, supposing a child of hers was in the cellar determined to fly to its rescue, at the risk of her own life and notwithstanding the warning of those around, she entered, never to return alive. She and her child both perished, this is surely a warning for us to watch for we know not when the hour cometh.

"Perhaps you would like to know how I employ my 'spare time' I will tell you it is principally taken up in reading. I am now perusing Hervey's Meditation; that is a grand work; it both entertains and instructs the reader, it is a fair mirror in which we are compelled to see our inferiority in its true light. It is a work which deserves a prominent place in every library and the perusal of every reader. My last book was the Young Man's Guide. That is a very good work and contains very good advice, which I shall endeavor to follow. I joined the Boston Lyceum yesterday and the only reason for my not joining it before was for a want of a knowledge of the advantages it held forth. There are several classes connected with it for instruction in several branches of education. The initiation fee is \$2.00 and without any further expense members can enjoy the advantages of these

³This is one of many original Horace Wells' letters in the Horace Wells Collection of the Dental Library and Museum of the University of Pittsburgh that appear for the first time in print. Spelling, rhetoric, etc., in all letters and quoted matter, are the same as in original.

several classes. I have considerable time to study and improve my mind, which I shall endeavor to improve to the best advantage.

"I suppose your Thanksgiving comes on now very soon. If I could spend time I should like to come and rejoice with you. Please send me a turkey's leg or something in that line, or else save it until the 21st of January at 6 o'clock precisely.

"Tell father to have room for three or four horses in his barn, plenty of oats, etc.

Good Bye

H

"21st of January at 6 o'clock means one week previous to that time, so look out."

To Miss Susan Shaw, step-sister, Westmoreland, N. H. (6)

"Dear Sister Susan

"Boston, Nov. 21, 1835.

"Are you not affraid of breaking over the rules of politeness by writing first, or are you so busily engaged that you cannot find time?

"I hope you will not make any excuse hereafter. I wish you was here I would give you a real shaking for not saying as much as boo! in the letter which Mr. Butterfield gave me this morning.

"I think you would like living here in Boston, the advantages are far superior to those in the country. If we will improve them here are libraries of every discription to which we may have access by paying a very small sum and here are evening conferences you may be surprised when I tell you how fully they are attended., but you may have some idea of the number when I say that your large meeting hose was in Westmoreland would be much to small to contain them.

"I attend a lecture every sabbath evening where several thousand assemble, (I hope with a good motive) to hear the truths of the Gospel dispensed.

"I should write much more but must close for the want of time.

"I hope you will not fail to write me a long letter—

Good Bye

Horace"

1836 —

In 1836 Wells moved to Hartford, Conn., where he established an office and succeeded in building up a fine practice. His ingenuity led him to invent and construct most of his dental instruments, and the dexterity and judgment with which they were used soon made him popular, so that he quickly took rank among the first in the city well known for his skillful dentistry.

In the Connecticut *Courant*, Vol. 72, No. 3715, April 4, 1836, page 3, is the following advertisement:

"Dr. H. Wells, from Boston, would inform the Citizens of Hartford, and the adjoining Towns, that he has at length acceded to the wishes of numerous friends in this section of the country, by making arrangements for spending a short time in this City, with a view of becoming a final resident, should present patronage be sufficient to warrant future success.

"He offers himself as a professional Dentist, and all work in the line of his profession will be thankfully received and faithfully executed. As he has embraced the new and much improved style of inserting Teeth as recently introduced into London and Paris, He pledges himself to give an acknowledged satisfaction in the most difficult cases. In soliciting a share of patronage, Dr. W. would avoid boasting of his own skill, or derogating that of others—but Ladies and Gentlemen are respectfully invited to call and examine his method of Inserting Mineral Teeth on Gold Plate. Particular attention paid to the preservation of Natural Teeth, by a process of cleansing and filling with gold.

"Office in Main-street, nearly opposite the Connecticut Hotel, 2d door from State-street, April 4.

* * * *

"This certifies that I the subscriber, a citizen of Hartford, employed Dr. Wells, while in Boston, in an operation on my teeth, and I am happy to say that it has answered my most sanguine expectations.

Joseph S. French."

In the same paper for April 11, page 3, and April 18, 1836, page 1, appeared this advertisement:

"Horace Wells, Dentist. Office in the Exchange-Buildings, on Main-street, two doors from State-street. April 11."

To Miss Mary Wells, Ipswich, Mass.(6)

"Dear Sister

"Hartford, August 29, 1836

"How are you? where have you been this long time? Why have you not written to me before? I am here as happy as a *clam*—firing away at teeth, but the greatest wonder is that I have not got on to some other business before this time; or moved to some other place; for I have been here almost six months—that beats all water.

"My business is now increasing very fast, my profits are from about 5 to 20 Dollars per day. I shall probably remain here should my health permit me to continue my business; I have thought for several weeks past of com-

ing home on a visit but I am here yet and I do not know how soon I may go. If we could contrive it so as to be at home together it would be very pleasant.

"Charles has made me a visit and returned to Nashua. Henry Humphry has gone to Boston. Frances says: if you will come and go to school she will go too. You had better come—

"I joined the church here a short time ago. I am very much pleased with Mr. Haws the pastor he is faithful to his charge and I hope and pray that I may be influenced by his exhortations to live a more holy life, it is my desire to grow in grace and be less engrossed in things of time and sense I know from experience that it is hard to have the heart right with God when riches are pouring in from all quarters, cares become multiplied and it requires a firmness which few are master of.

"It is now a time of general declaration through out New England, in regard to religion. but it is hoped that there may be a reaction, as for myself I have reason to believe that I am growing in grace but it is very slow. I ask your prayers and you shall not be forgotten in mine.

Your affectionate Brother

H—

"N.B. Write immediately"

To his stepfather, Mr. Abiather Shaw, Jr., Westmoreland,
N. H. (6)

"Dear Parents

"Hartford, Nov. 25, 1836

"I am now here, but expect soon to leave, how soon I do not know. I have a work now in the prep, which will be out in a few days, you doubtless wish to know my future prospects. I have only to say that I have not changed my mind since I saw you however I think it rather more probable that I shall continue the publishing business (if I succeed well this winter) than that of going to a foreign climate, but I have not given that up. It is impossible for me to give you any decisive answer now. It is my sincere desire to do as much good as possible. and I hope and pray that no selfish motive may ever influence me to go contrary to this principle. I have not heard one word from you since I left home. Have you heard from Charles?

"I think of going to Boston soon and shall see 'Harriet, please write before I go—that is—immediately. Yesterday was Thanksgiving here, and indeed I beheld a scene which could not fail of making a heart of stone thankful. It was a man who was bitten about 4 weeks ago by a mad dog—and yesterday he breathed his last. It was a shocking sight, words cannot describe a scene so distressing, it was necessary to fasten him down

to his bed and tie his hands. it appeared worse for his having his reason, which was evident that he had for he entreated of the Doctors out of mercy to bleed him to death. This is the first case which has happened here, one or two other men were bitten by the same dog, you may well imagine the suspense which they are now in—

“N.B. Please write by the next mail

From your Son,
Horace”

1837 —

To Miss Mary Wells, Westmoreland, N. H. (6)

“Hartford, April 29, 1837.

“*Dear, Dear, Dear Sister:*

“You say you won’t write to me because I don’t write to you—Now I do not think *wont* to be proper english it must be of Dutch extraction or some other outlandish brogue, however, I can take the hint although it is rather blind, and now seat myself to write to Dear Sis, hoping that you will excuse all past negligence as I intend to do better for the future. You know what a task it is for me to write letters or you know how it used to be—well, I am not altered for the better on that score. I can sit down and talk with a friend and enjoy it finely, but this writing in a corner all alone is not much pleasure to me, but no one likes to read letters better than myself, so I hope in future you will not fail to write to me if I should not perform my duty and take it for granted that it is not for want of affection—no indeed it is not—after this let me hear from you frequently.

“I see Frances very frequently and visit now and then, once in three months or so. I am as slack in making calls as in writing. The last or last but one visit that I made there she received a letter from you; just before she had given you a real scolding for not writing or answering her letters, indeed, she has been complaining ever since I have been in Hartford. She now attends Miss Drapers Seminary and wishes you to come board with her and go to school. Do come, you can as well as not and then we will get Charles and Lambert here, yes, Elisabeth and Susan and perhaps by and by Father and Mother come and see we will have fine times, assure you. If you say that you will come perhaps I will go home and wait on you down. I understand that you have given up your music, sorry for that—keep a drumming on them black and white things and you may charm some fair swan yet, who knows.

“Henry is well and selling pills as fast as ever, he has moved and is close now by me I told him some weeks ago if he would take a tour into the country with me we would happen along through Wetmoreland. He came

very near accepting my offer. I have not visited at Miss B's these six months and cannot tell how they all do. There is a young school mistress boarding at Mr. Humphrey's who wishes to see you very much. I asked her if she had ever seen you, she said no—but replied that she was well acquainted with you. All the family that I have is 3 canary birds and one French Linnet which sings sweetly. I have now a splendid accordeon and when I commence playing the birds commence singing so we have fine concerts. I have been unwell but am now nearly recovered. While the lowest, I thought how little prepared I should be if God should see fit then to call me from this stage of action and I then resolved to be more mindful of my duty if He should see fit to raise me up. I hope that the resolution will not be forgotten for at the longest I cannot expect to stay here long and how is it possible for any of us to be so indifferent in regard to God's law as we are, it appears to me, nothing less than mental derangement. May we lead such a life as shall meet the approbation of conscience in a dying hour.

Your affectionate
Brother Horace."

1838—

This lack of a family of which Horace complains was soon to be changed. The Rev. Dr. Hawes' sermons didn't hold Horace's attention so completely that he failed to notice the young ladies in the congregation, as witness the following "rapid fire" correspondence.

To Miss Elizabeth Wales, Hartford, Conn. (6)

"Hartford, March 5th [1838]⁴

"Miss Wales:

"It is with no little diffidence that I take my pen in hand to address you at this time, and to ask one or two questions for which I may be charged with presumption; the purpose, however, has not been formed without due consideration. We are comparatively strangers, and for that reason I at first resolved in this communication to ask but one, *vis.* Would it be in accordance with your wishes to become more familiarly acquainted with me? Here I intended to sign my name, but there are reasons which have induced me to ask one more question and abide the consequences.

"Whatever the answer may be, you must excuse me for being so explicit.

"Are there circumstances which preclude the possibility of this proposed acquaintance ever resulting in a more intimate connexion than that of

⁴Year not on original letter.

brother and sister in Christ? Now, Elizabeth, you doubtless understand the import of this, and I shall expect a candid answer.

"If I have been premature in the last query, it remains for you to forgive.

Truly yours,

H. Wells.

"N.B. It would be well to add the word Dentist, with the superscription of your letter as there is another of my name."

Reply addressed to H. Wells, Dentist, Hartford, from Miss Elizabeth Wales.

"Hartford, March 6th [1838]⁵

"Dr. Wells,

"Sir:

"With no small surprise I received your communication of the 5th and felt it to be my duty to confide in my Aunt, who has ever manifested the highest interest for my welfare. She wishes me to act agreeable to my judgment as her only wish is for my happiness, with the hope that the intercourse may be commenced and continued in such a manner that should it hereafter terminate, it may still exist as brother and sister in Christ without injured feelings to either.

"I am therefore prepared to say in answer to your first question, it being direct, that to cultivate a farther acquaintance with you would be agreeable to my wishes. If the confession is too full pardon it. If I comprehend your second question it is one which involves our temporal happiness. You will not expect me to say much upon that subject at this time. I will only add that had I seen any insurmountable obstacle to the second I should not have been so explicit in answering the first.

Yours

E. Wales"

To Miss Elizabeth Wales, Hartford, Conn.(6)

"Hartford, March 7th [1838]⁶

"Elizabeth:

"Permit me to suggest the propriety of making my visits periodical, for the present.

"I would therefore propose to make you a one-half-hour call, on each Tuesday evening at 7½ o'clock.

"If this time would be inconvenient, I hope you will not fail to inform me. If I mistake not, the right-hand bell belongs to you. If I am mis-

⁵Year not on original letter.

⁶Year not on original letter.

taken, please inform me; the mistake itself would be a small one, but sometimes little things cast great shadows.

Yours,
Horace"

Five months later they were married.

Horace's well-defined courtship did not interfere with his literary efforts, because this same year he published a small volume, "An Essay on Teeth: Comprising a Brief Description of their Formation, Disease, and Proper Treatment." Case, Tiffany & Co., Hartford, 1838. A few revealing excerpts from this volume by Horace Wells, who was only twenty-three years old at this time, follow:

"A few words respecting the dental profession may not be out of place, especially as no profession is more liable to the abuses of quackery.

"Every trade requiring much intellectual cultivation, has, in this country, a greater proportion of unqualified men in its ranks, than is the case in the enlightened parts of Europe. It is true, that in some branches, of public improvement, we leave the old country far behind: in other branches, however, Europe is far before us. The cause of this difference is found in the circumstances connected with the infantile age of our Republic. (Our young men, in many cases, are not in a condition to go through a course of study in the higher seminaries, and frequently those who do pass a collegiate course, commence practice, in their various callings, immediately on the close of their four years' term.) In Europe, most educated men are not only well educated, but, in multitudes of instances, are educated veterans; and young men before they presume to cope with them for public approbation, must pass, not four or six, as in this country, but actually twelve, fourteen or twenty years in the Universities. Hence, in a greater proportion, (other things being equal) than in this country, they understand well what they profess to understand; and hence they are likewise depended on, and quackery has less chance of practising mischief, at least in those circles not lower than our own.

"Those who are engaged in active business of any kind, while contemplating real or imaginary difficulties, or privations, peculiar to their particular calling, are apt to become discontented, and envy the condition of others who have been fortunate enough to select a different employment.

"Here, those who become thus discontented can abandon any trade or profession whatever, and immediately place the word 'Dentist,' for a sign upon their doors, with impunity.

"There are instances, however, where imperative duty demands a change

of business. But there are no circumstances which will justify ignorant pretenders in an act so contemptible as that of imposing on the public, by offering services which they are incapable of rendering, and in place of which, dealing out the seeds of disease and death.

"I have said that duty, in some instances, demands a change of occupation. If a young man selects the dental profession, with the intention of making it a business for life, and at length finds himself deficient in mechanical ingenuity, so that his operations prove ineffectual, it is then for his own interest as well as for the interest of those who might employ him, to abandon the profession forever. It is generally supposed, that if a dentist has been long established in business, he must, as a matter of course, be skillful; and frequently this is the only recommendation desired. I unhesitatingly assert that there are many who would not become good dentists, with ever so much practice, wholly for the want of that one indispensable qualification—natural mechanical skill. I have known those who have performed operations on teeth for many years, and then were unable to compete with others who could boast of but one year's experience. A skilful Dentist should in all cases be employed. There are many who are indifferent respecting this, and they imagine that any person can properly perform so simple an operation as that of filling the teeth, to arrest their decay. This is truly a great mistake; and not a few can testify to the fact from sad experience.

"However simple the operation of filling the teeth may appear, it is, in reality, the most complicated, as well as the most important branch of the profession. An ordinary Dentist may succeed in performing all other operations tolerably well, while this remains beyond the reach of his skill. He may truly put gold into the tooth, and perhaps it will keep its place for some length of time, but if the work is not effectually performed, the decay will proceed as before, even if the gold remains.

"The teeth, being conspicuous ornaments to the person, as well as useful auxiliaries in the animal economy, should be as much an object of care and preservation, as any of the bodily functions. It is well known what effect they produce on the lungs, stomach, etc., contributing to their freshness and sweetness, to the preservation of health and strength, or, by their deleterious gases, bring on or hasten decay. Is it not a remarkable fact, that men of fifty or sixty years of age, and upwards, who have long enjoyed sound teeth, have the most vigorous health?

"Doubtless all are convinced of the importance of preserving the teeth, while the only question remains, what is the best method of treatment? In reply to this, I have only to say, first become acquainted with the nature of

these organs, and of their destroying agents, and then let reason dictate. . . ."(7)

Notice in the first volume (1838) of the Hartford Directory: "Wells, Horace, dentist, 162½ Main Street."(8)

Married to 20-year-old Elizabeth Wales on July 9, 1838.(6)
(Elizabeth Wales, born April 8, 1818, died July 17, 1889.)(9)

Letter to Mrs. Abiather Shaw, Westmoreland, N. H., from Mary Wells.(6)

"Hartford, July 9, 1838

"My own dear Mother:

"Can you imagine what has been the business of the day with us here? Yes, I feel as if you had thought much of us, for I take it for granted that you know this is Horace's wedding day—but perhaps you are surprised to find your daughter is here, but 'tis even so; you may be surprised to know that I could leave my school; but I found I could on so important an occasion as this—funny was it not that brother should strike up such a sudden match? However, I believe it is a very good one. I have become some acquainted with this new sister and like her much; she is not handsome, but good looking and a very pleasant young lady, and withal I believe she is a Christian. To such a one was our Horace united in holy matrimony this morning at seven o'clock, and should I tell the bride's maid, it was a near relative to yours and the groom's man was H. Humphrey; the time passed off very pleasantly among the circle of friends about thirty in number, till about eight, when the carriage stopped at the door and in stepped the bride and bridegroom, with *attendants* of two. Stopped at Wethersfield and took some refreshments, then Horace and lady took their carriage which had previously sent down, and we turned ourselves back toward Hartford. And now you see I have sit me down to give you an account of matters and affairs the very day, that it might be *fresh* to you. They have gone to Guilford to spend about a week on the seashore, and as for *me* I shall probably return to Ipswich some time this week, though they beg me to stay longer.

"I called to see Harriet on my way here; spent one night with her; they were all well and I think my nephew a fine little fellow; he is prospering nicely; he did not, however, pay much attention to his Aunt Mary.

"I must tell you of a cousin of ours here; his name is Henry Wells; he is in a store here; I saw him for the first time at the wedding; that is all I know of him; if you know more you may finish my story; he promised to call on me before I leave town. Well, you may suppose that I am running ashore as to money and such is the case. These wedding times cost something and I should like \$20 bill or so; send to me directly and direct to

Ipswich, where I shall probably be before the close of the week. Do write me very soon and enclose this; write too all the particulars about yourself and family. Why did not Charles come to the wedding? We expected him; and where is Elizabeth too? Poor sister, I pity her; I think she must soon feel as a lone turtle dove who has lost its mate. I received a letter from her just before I left Ipswich. She seems to feel that it will be a great trial to her feeling to have her husband go to sea, and I should think it would be Tuesday 10. Oh Dear; do you have such warm weather in the country; what do you do? It seems as if we could not endure it. I can hardly set myself about anything I feel so wilted, but I am thinking I can write home about as well as do anything.

"I have enjoyed the visit here very much and shall regret being obliged to leave so soon; it really seems much like old times to be walking these streets once more.

"How does Lambert succeed as superintendent; I hope he will feel that much of the interest of the school is resting upon him and his efforts. I have a class in the Sabbath school at Ipswich . . . I like it much. We use Newcomb's questions which I think very good.

"You wished me to write respecting Miss Grant's health. It is now quite good so that she comes in about every day and gives us a respectably long lecture.

"This is a jumbled letter, I must confess, but it is so warm is my plea, but consider still the same affectionate and faithful daughter.

Mary"

Under the heading *Marriages* in the *Hartford Courant* for July 21, 1838, appears the following brief note:

"In this city, on the 8th inst., by Rev. Dr. Hawes, Dr. Horace Wells, to Miss Elizabeth Wales, both of this city."

Letter to Mr. Abiather Shaw, Jr., Westmoreland, N. H., from Horace Wells. (6)

"Hartford Sep. 21, 1838

"Dear Parents

"You must excuse my negligence in not writing you before. However it is not my turn as I have written since receiving one. I have been married 11 or 12 weeks and with this short experience in the marriage state, I can truly say that I have bettered my condition. It was next to a miracle that I chanced to find a friend so well suited in every respect to be my partner for life—I am now enjoying myself right well, making money fast enough, and good friends to spend my leisure time with, week before last I made \$100. clear from all expenses—last week I went to New York with my

wife to attend a wedding party of her brother we have just got back, and feel rather worse for the wear, going down we were caught in a gale which took off both smoke pipes of the boat, and detained us one day to repair at New Haven. Coming up as luck would have it the boat run aground and detained us another day. but we are at last here and in usual health. I have some expected you here this fall—why can you not come and see us? I have not heard from Charles since my marriage. why has he not written? Why have you not written? do write soon and give all the news—do not let another mail come without bringing a letter from you if you are in the land of the living.

“Have you collected more money for me? if so you may put it into the savings bank at Keene until I send for it—next Spring I some think of building in the vicinity of Hartford and have my horse to ride in every morning which will give me more exercise which I find to be necessary.

“I cannot write more until I hear from you. Wife sends much love and wishes to see you very much—by the way I think you would be pleased with her, come and see.

Yours in haste
H. Wells”

1839—

August 26. Only child, Charles Thomas Wells was born. (Died June 8, 1909.) (9)

The excitement of becoming a father did not still Horace's active brain. Improvements on old methods or devices or development of new ones were constantly flowing from his brain and fingers. Most of his inventions were never patented and so we have no record of the total number. However, this year we know that he perfected a device for sifting coal ashes which prevented the sifter from becoming coated with ash dust. Horace was fastidious about his appearance and probably was stimulated into perfecting this device because of repeated unpleasant “bouts” with the old coal sifter.

Regardless of the reason, on December 31, Patent #1450⁷ was

⁷It has erroneously been reported that no patents were issued to Horace Wells. Mr. J. A. Brearley, Chief Clerk, Department of Commerce, United States Patent Office, Washington, writes: “You are advised that the Index of Inventors from 1790 to 1847 shows two patents issued in the name of Horace Wells of Hartford, Connecticut, No. 4836 for Shower Bath issued November 4, 1846 and No. 1450 for Coal Sifter issued December 31, 1839.”

issued to Horace Wells for a Coal Sifter.(10) (See drawing and details of this invention on page 193.)

1840 —

Discussion with Linus P. Brockett, Hartford, Conn., showed Wells "Deeply impressed with the idea that some discovery would yet be made by which dental and other operations might be performed without pain."(11)

1841 —

Although Dr. Wells opened an office for the practice of dentistry in Hartford, Conn., in 1836, we do not have any of his office records for the years 1836 to May of 1841. However, there is in existence (12) his Day Book in which he recorded the charge accounts of his patients, beginning on May 13, 1841, and with regular entries up to January 17, 1845. The dental operations which were paid for at the time of completion were not entered. This record book proves conclusively that he was a very busy dental surgeon, who had as his patients the prominent people of Hartford and vicinity.

Successful practitioners of dentistry, as already pointed out, were sought by "would be dentists" for the purpose of apprenticing themselves to the prominent dental surgeon until they felt that they were sufficiently trained to open their own office for the practice of dentistry.

During Dr. Wells years of practice in Hartford, he had many students under his tutelage who subsequently gained considerable renown. For example, he tutored Wm. T. G. Morton, who first publicly successfully demonstrated ether anesthesia; John M. Riggs of "Riggs Disease" fame; and his cousin, C. A. Kingsbury, who later was one of the founders of the Philadelphia Dental College.

1842 —

Letter to his mother, Mrs. Abiather Shaw, Westmoreland, N. H., from Horace Wells.(6)

"Hartford June 26, 1842.

"Dear Mother

"Your letter has just come to hand and I have no apology to make for not sending you a paper according to your request, for it was through care-

lessness on my part, the money of which you speak I received in due time all safe.

"My house is almost done, we think of moving in about 10 days. We think it is the most convenient house in all creation beside its being the prettiest, and odd as all out doors. The cost of the whole including land fences and all will be but about \$4000. I shall not be able to pay for the whole as the expense for house keeping articles I find will cost me almost enough to build a small house therefore I wish you would make some special effort to assist me, if you cannot do it now please to send it as soon as you can. You have no idea how pleasant it is, at the house the prospect is so fine, I have planted a great number of trees and all of them doing well. I wish you and Mary would come down and see us. I shall expect Mary immediately without fail—and shall look for you as soon as fall if you do not come before.

"You ask about Uncle Heath's wife, I think some one told me he married Uncle Hish Wells' Wife's Sister. You will undoubtedly be surprised when I tell you that Emily Wells, daughter of Uncle Ira is married. A gentleman from Penselvania took her off a few days ago, his name is Wood. Wife and myself were at the wedding and all appeared cheerful. Mr. Wood appeared like a good sort of a man, and I have no doubt that he is worthy of the hand of Emily.

"You ask me if I have to pay extra postage on my letters containing money, I have only to say that I do, they smell the rat, but no matter.

"Our Charley talks and is more interesting than ever. I will give you a example of his intellectual powers—the other day when it was raining he saw a bird on the tree he says 'Mother poor bird get cold and cough'. We asked him the other day if he was a little boy. He says 'No!' 'Young man'—

"To conclude I have only to say that we are jogging along after the same old sort—

"All send love—Yours in haste,

H. W.

"Elisabeth says she will write before long."

William T. G. Morton continued his study of dentistry under Wells. (14)

1843 —

On June 6th of this year Horace Wells became a member of the Young Men's Institute of Hartford. His Day Book for this year proves that his practice flourished and he numbered among his

patients the outstanding citizens of Hartford, Connecticut, including Governor Ellsworth. However, there is an interruption in the entries in his Day Book from October 17, 1843, to November 13, 1843.

His whereabouts at this time are described in the following letter which also makes clear several points concerning the Wells and Morton partnership in Boston. There was some doubt in my mind that Wells ever went to Boston; that the partnership was in name only. However, this letter clearly proves that Horace Wells went with W. T. G. Morton to Boston where they set up an office. It also proves that he stayed in Boston for at least two weeks, but nine days after he returned home he wrote Morton from Hartford declaring his intention to give up the partnership and suggested ". . . let us give it up and jog along here at home as usual; . . ."

It is also interesting to note that Dr. Wells states in the letter here reproduced, "we have also succeeded in getting the certificate of the most celebrated chemist and geologist in the country in relation to my invention. . . ." This invention was a gold solder. The celebrated chemist and geologist, Dr. Charles T. Jackson, was later to be one of the claimants for the title of discoverer of anesthesia.

Letter to Mrs. Dr. Horace Wells, Hartford, Ct. (6), from Horace Wells.

"Boston, Oct. 28, 1843

Saturday eve

"Dear Wife:

"This is the first leisure time that I have found since my departure from Hartford. By the way, in the first place I ought to bid you and Charley good bye, for I came off in such a hurry that I was deprived of that privilege. I expected as a matter of course I should have time to come down to 'Aunt Bays' to bid you and all others good bye, but the time was past before I was aware of it, thus much for the preface, now for the journal. Well then I arrived at Springfield in due time but we were greeted by a most disagreeable snow storm; in fact, we had it immediately after leaving Hartford. When we arrived at Springfield the cars from the west had not arrived, and did not arrive until after dark, in consequence of an accident on the road. We, therefore, had a night job of it. We have been engaged ever since in procuring a room for our office and have just succeeded to our perfect satisfaction, indeed, we have one of the finest rooms in the City, which we obtained by mere chance it is No. 19 Tremont Row, the most

fashionable place in the City, and one man told us that he had been waiting 2 years to obtain a room in this location and had not succeeded yet, such is the demand for rooms in this location you will readily perceive therefore that we were fortunate in this respect. We have also succeeded in getting the certificate of the most celebrated chemist and geologist in the country in relation to my invention which will undoubtedly secure a first rate business to the office. His name is Dr. C. T. Jackson which you have undoubtedly heard of before, he expressed himself in the highest terms of admiration respecting the improvement, and he spent 3 days in analysing the gold to see if it was as it appeared to be; he has made his report in writing and has given us permission to publish it, which we shall do next week. Any statement coming from such an eminent man must have a wonderful effect, in short we have succeeded thus far in our preliminary arrangements beyond our most sanguine expectations. We shall be ready for business on Monday or Tuesday and as soon as our advertisements come out I will send you papers containing them. I shall probably remain here about 2 weeks longer and I wish you to write me as soon as you receive this and inform me of your health and how Charley comes on and all others.

"Write often say every other day. You don't know how much I prize letters when I am absent from home—

Your Hus—.

Horace"

Letter to Dr. Morton from Dr. Horace Wells:

November 22, 1843, the following letter from Wells to Morton is printed in Dr. N. P. Rice's book: "to show the good feeling which existed between them, and the cause which really induced their separation." (15) (Dissolution of partnership.)

"Dr. Wells wrote: 'We can both of us see at a glance that it is madness for us to go ahead under present circumstances, for the reason that our receipts will barely pay the cost of materials used, even if we had ever so much work at the prices you have taken those jobs now on hand. . . [Unfortunately part of the letter was deleted]. . .

"I am satisfied in my own mind that our enterprise will be a total failure. So let us give it up and jog along here at home as usual; in case you do not give up the enterprise, I, of course am ready, and do give you notice that I wish to get out of it as soon as our agreement will permit. I wish you to understand that I have not the least fault to find with you; I have the utmost confidence in you as a gentleman, and one who will ever aim to act your part well in accordance with the strictest honor and integrity; we have both exerted ourselves to the utmost, and I believe that our

ill-success cannot be attributed to either of us so far as "goaheaditiveness" is concerned'".(15)

1844—

Morton apparently convinced Wells to continue this strange relationship, because on January 30, 1844, this advertisement appeared in the *American Traveller* (Vol. 19, No. 61).

"DENTISTS

"Messrs. Wells & Morton, Dentists, No. 19 Tremont Row, are determined to make their valuable invention extensively known, and duly appreciated in the shortest time possible; with this in view we now propose to insert teeth on gold (until further notice) without compensation until the expiration of one year; then if the patient is perfectly satisfied that our invention is really valuable and superior to any other mode of constructing gold plates, we shall expect a small compensation which may be previously agreed on, otherwise we will ask nothing. All we shall require when the teeth are inserted, will be just enough to pay for the materials used, which will be but a trifle. If by this means we are enabled to introduce our improvement more extensively than in the ordinary way, our object will be attained.

"All persons can have the benefit of this proposition, whether living at a distance or in town, by calling or sending us word within one week after the publishment of this notice, so long as it may be continued.

Wells & Morton,

No. 19 Tremont Row."

Nov 4—Wly

"N. B.—Dr. Charles T. Jackson's certificate respecting this invention to be seen at our office.

This copartnership was apparently in name only, as Wells returned to Hartford.(13) Wells describes this relationship in these words: "I—assisted in establishing him in the city of Boston—."(14)

Additional proof is seen in the following agreement in Horace Wells' handwriting which was found among his papers. Note that Morton never signed this agreement. Perhaps this is one of several copies.

"Whereas William T. G. Morton of Boston Mass was a former partner of Horace Wells of Hartford, Conn. in Dentistry with an office located

at said Boston & said Morton has continued to use and still does use the name of said Wells as a copartner, thereby holding out to the world said Wells as his present partner and impliedly rendering said Wells liable for the indebtedness of the (so called) partnership.

"I of Farmington Conn. do hereby for the consideration of one Dollar to me paid by said Wells (the receipt whereof is hereby acknowledged) guarantee and hold myself accountable to said Wells for all liabilities and demands that have accrued or may accrue to said Wells through said Morton.

"It is understood that all claims which were and prior to the copartnership of said Wells & Morton are not included in the above guarantee."⁸

Wells, in addition to his dental practice, had quite a number of coal sifters made by Col. Thomas Roberts, Manufacturer. (16)

The following selected entries from Wells' Day Book, show that Wells was still giving Morton "Instructions in the art of dentistry, as per agreement" and did considerable of Morton's work in Hartford. (12)

March 4th, 1844—Dr. Wm. T. G. Morton.

To operations on teeth and instructions in the art of dentistry,
as per agreement. \$50.00

May 4th, 1844—Dr. Morton, Dr.

Gold foil used in filling teeth for self, 7 sheets \$17.09

Also specimen work \$ 7.00

May 17th, 1844, Specimen, set of teeth, Dr. Morton. \$ 7.00

Inserting 2 teeth for specimen \$ 3.00

May 21st, 1844—Dr. Morton, Dr.

Inserting teeth for Mrs. Smith. \$16.00

Difference in weight of gold. \$ 1.00—\$17.00

May 27th. Dr. Morton

14 teeth at 37½ cents. \$ 5.25

June 11, 1844.

Repaired Mrs. Smith's teeth for Morton \$ 2.00

August 30th, Dr. Morton.

1 set of teeth at 37½ cents. \$ 5.25

Sept. 2, 1844—Dr. Morton.

To inserting teeth for Mrs. Phelps.

⁸The original is in the Connecticut State Library.

Letter to his uncle, Dea. Ira Wells of East Windsor, Scantic Village, Ct., from Horace Wells.(6)

"Hartford, June 9, 1844

"Dear Uncle

"This letter is on business of much importance and I hope you will attend to it in a 'business like manner'. It is no more nor less than the making up of a match between a gentleman of this City and Miss Hannah Potwine of your place—in short Mr. Hender my wife's Uncle who is about 60 years of age has just got a bill of divorce from his wife who resides in the West Indies, and having heard myself and wife speak of Miss Potwine, formerly, he has taken it into his head that he would like an introduction to her. He has accordingly requested me to write you on this subject in order to ascertain whether an introduction would be in accordance with her wishes if so he will call at your house and ask of you the favor to introduce him. You can state to her that he is about sixty years of age has about twelve or fifteen thousand dollars. He would like to have you see her as soon as convenient and if she wishes an introduction to state what day would be most convenient and to inform me forthwith.

Yours truly H. Wells"

Letter to his mother and sisters:

"Hartford, July 6, 1844.

"Dear Mother and Sisters:(6)

"You must excuse me for not answering your letters before, for you know I am no letter writer, but I have come to the conclusion that if I do not write you will strike my name from your list, so here goes—Well, in the first place I am in the enjoyment of good health, animal magnetism to the contrary. Notwithstanding—yesterday a magnetised lady examined my system and pronounced my lungs slightly affected I think it must be *very slightly* indeed—however, she placed her finger upon my side and said I had at times a slight pain which was really true, however, her verdict does not alarm me in the least. She examined Elisabeth also and pronounced her liver a little affected and what was remarkable she described every painful feeling to which she is subject, and pointed out the locality correctly—her statement in regard to Elisabeth agrees perfectly with the Dr's opinion—not Dr. Saltmarsh—but Dr. Dodge. The lady's name is Mrs. Powers, who is undoubtedly the best magnetic subject in the United State. No one would think her asleep to hear her converse when under the magnetic influence; yesterday when in this state she gave us a lecture on Light. I believe it would be impossible for any clergyman in this city, to discourse on that sub-

ject as she did, using the most elegant language I ever heard. She dwelt on the analogy of the natural and spiritual light.

"You undoubtedly feel anxious to know how I come on with my Boston business. I will tell you in short I was not in partnership with Morton, but about 4 weeks . . . you recollect when I visited Boston and came so near meeting Mother, I saw Mary—well the object of my visit then was to see if I could not influence him to pursue a different course from what report told of him He is now married. I attended his wedding at Farmington a few weeks since. . . . He has married a fine girl. . . . By the way I am on perfectly good terms with Morton and would not on any account be otherwise; he refunded to me the money which I had expended in starting the office and I was exceedingly sorry that I had not selected a man to conduct the business there in whom I could place confidence as our prospect for business there was far beyond our most sanguine expectations; in fact it would be easy enough to realize a fortune there according to his story he is making \$18000. a year or fifteen hundred dollars per month. I know he is making money fast for he keeps two workmen employed beside himself, but when he talks about making \$18000 a year I am apt to think he is using his tongue in making a random statement which he is no stranger to— . . .

"When I commenced writing Elisabeth thought of writing, but as I have finished the sheet she will write another letter soon. She sends love, etc."

(Signature Missing.)

October 24, 1844. The following appeared in the *Boston Daily Atlas*, Vol. 13, No. 100.

"COPARTNERSHIP NOTICE. This certifies that the co-partnership of WELLS & MORTON has been dissolved by mutual consent.

"Oct. 18, 1844

Horace Wells

ep3t

o23"

Horace Wells was a sensitive and compassionate young dental surgeon as has been indicated in his letters. The suffering he caused when he extracted teeth troubled him greatly. Because the extraction of teeth was one of the most frequently performed dental operations, his mind was constantly occupied with the thought of discovering some way to prevent the terrible pain which accompanied the operation. Four years before he had, as we have read, discussed the possibilities of preventing surgical pain with his medical colleagues in Hartford. They were unable to help him. Horace continued his studies and availed himself of every opportunity to advance his

knowledge. Reading in the *Hartford Courant* on December 10th that there would be "A GRAND EXHIBITION of the effects produced by inhaling NITROUS OXIDE, EXHILARATING or LAUGHING GAS . . . scientific to those who make it scientific . . . and (also) . . . most surprising CHEMICAL EXPERIMENTS . . ."—(See the entire advertisement on page 177)—that evening in Union Hall, Horace and his wife attended. As part of his demonstration, Mr. G. Q. Colton manufactured some nitrous oxide, known as "laughing gas," and to amuse the crowd invited spectators from the audience to come forward and inhale the "laughing gas fumes." When this part of the lecture was reached, Wells, in the audience, observed that no sign of pain was exhibited when the volunteers under the "laughing jag" of the gas stumbled around the stage and scraped their shins on heavy benches. Immediately there crystallized in the mind of Wells the idea of inhalation anesthesia. Wells, it is thought, was unacquainted with the suggestion of Sir Humphrey Davy some forty-four years prior.

What happened subsequently can best be told in the words of one of the participants in the historic event, Dr. John M. Riggs:

Wells and I had a ". . . conference that night & determination to try the gas on Wells the next morning. Wells went to the Hall & asked Colton to let him have a bag of gas as he wanted to take it and have a tooth pulled—& he invited the party, Colton, Cooley, and two others to come up and witness the operation. I was attending to a patient but was awaiting Wells' return. When I entered Wells' office, the said parties were there. Wells took his seat in the operating chair. I examined the tooth so as to be ready to operate without delay. Wells took the bag in his lap—held the tube to his mouth & inhaled till insensibility relaxed the muscles of his arms—his hands fell on his breast—his head dropped on the head-rest & I instantly passed the forceps into the mouth—onto the tooth and extracted it.

"Mr. Colton, Cooley and the two there stood by the open door ready to run out if Wells jumped up from the chair & made any hostile demonstrations. You may ask—Why did he not get up? Simply because he could not. Our agreement, the night previous was, to push the administration to a point hitherto unknown.

"We knew not whether death or success confronted us. It was *terra incognita* we were bound to explore—the result is known to the world. No one but Wells and myself knew to what point the inhalation was to be car-

ried—the result was painfully problematical to us but the great law of Nature, hitherto unknown, was kind to us & a grand discovery was born into the world.(6)

“Encouraged and gratified with the success of the first experiment⁹ the aforementioned Wells and myself continued to administer to various individuals the said gas and to extract teeth while under its influence, in the presence of several gentlemen, until fully satisfied of its usefulness and applicability in surgical operations. I further affirm that the said Wells avowed his intention to communicate the discovery to the dental and medical faculty, and in pursuance of that intention, proceeded to the city of Boston, State of Massachusetts for that purpose. . . .”(18)

It was a disappointment to discover that Wells made no entry in his Day Book on December 11, 1844,(12) concerning his inhalation of nitrous oxide prepared by G. Q. Colton, for the extraction of his aching wisdom tooth. The entries for this date are:

December 11, 1844 —

Governor Ellsworth—To filling teeth for Mrs. Ellsworth	
G. W. Corning—Extraction for daughter	\$.50
Daniel Seymour—Ext. tooth for daughter	\$.25
Thos. Jones, East Hartford—filling 2 teeth	\$2.00
Rev. Mr. Richmond—filling 3 teeth for wife	\$3.00
Two visits to house	\$1.50

Of course, this book was for the recording of work not paid for; it is said that it was the custom in those days to keep records only of that type of work. No record of work paid for at the time of completion was kept. Yet it is strange that having made such a momentous discovery, Wells did not make some notation concerning it in his Day Book.

There were no further entries in this book from December 11 to 21 and then none until December 30 and 31. So Wells' Day Book proves his statement; “On making the discovery I was so elated respecting it that I expended my money freely, and devoted my whole time for several weeks, in order to present it to those who were best qualified to investigate and decide upon its merits, not asking or expecting anything for my services, well assured that it was a valuable

⁹The operation on Wells, December 11, 1844.

discovery. I was desirous that it should be as free as the air we breathe. . . ."

1845 —

In 1845 entries were made for January 6, 7, 11, 15 and 16, and then there was a lapse until February 4.⁽¹²⁾ This is probably the time Wells went to Boston "resolving to give it (the discovery) into the hands of proper persons without expecting to derive any pecuniary benefit therefrom."

For several weeks following his discovery, Wells experimented with the gas, and, desiring to acquaint the world with this release from surgical pain, he hastened to Boston, the medical center of the New England states. There he arranged through his former pupil and partner, Wm. T. G. Morton, to lecture and demonstrate nitrous oxide before the senior medical students of Dr. John C. Warren. Unfortunately, the demonstration was not completely successful, as Wells, being somewhat nervous, withdrew the gas bag too soon and the student cried out when the tooth was extracted. Later he admitted, however, that he had had no pain. Wells returned to Hartford, where he continued to use nitrous oxide in his practice and taught other dentists to use it. When friends urged Wells to patent his discovery he said, "No! Let it be as free as the air we breathe!"

January 20th, 1845—In the *Boston Bee*, Vol. 6, No. 71, of this date, is found the following news item:

"A dentist in Hartford, Conn., has adopted the use of nitrous oxide gas in tooth pulling. It is said that after taking this gas the patient feels no pain."

This was at the time it is believed Horace Wells gave his demonstration in Boston. Unfortunately his name was not mentioned in this news item.

Dr. John C. Warren, Professor of Anatomy and Surgery, Medical School, Harvard University, wrote on the subject:

"In this country, Dr. Horace Wells of Connecticut, made many trials of this gas in 1844. In the autumn of that year¹⁰ he came to Boston, and in the company of Dr. Morton visited me at the Medical College, for the purpose of requesting that the Medical Class should have an opportunity of hearing

¹⁰Doctor Warren was mistaken about the date.

some of the remarks on THE USE OF THE NITROUS OXIDE FOR THE PREVENTION OF PAIN. These remarks were actually made, and at a subsequent day a trial of the gas took place. But as I was very much occupied at the time, these occurrences made so little impression on my mind, that when, in the latter part of 1846, we were assailed in reference to Dr. Morton's first experiments, for a too great facility in adopting novelties, and the facts above mentioned were brought to corroboration—the charge, I was for some time not able to understand the grounds of the attack. Dr. Wells, however, in the summer of 1847, mentioned to me circumstances which recalled to my mind his visit; and his statement was afterwards confirmed by that of Dr. Morton. . . .”(14)

February 4th, 6th, 7th and 17th entries made in the Day Book. No more entries until September 10th.(12) Wells states, “the excitement of this adventure, [the demonstration in Boston] brought on an illness from which I did not recover for many months, being thus obliged to relinquish entirely, my professional business.”(14)

February 5, 1845, in the *Hartford Courant*, Vol. 9, No. 30, page 3, appears the following advertisement:

“COTTAGE TO LET—H. WELLS, wishing to give up house-keeping, will let his Cottage on Lord's Hill at a very low rent, to one who will pay some attention to the shrubbery and trees on the premises. Possession given on the 1st of April. Enquire at his office between the hours of 10 and 12 A. M. tf feb 4”

(See photograph of house on page 167.)

April 7, 1845, the *Hartford Courant*, this date, Vol. 9, No. 81, page 3, has the following notice:

“DENTAL NOTICE—Having relinquished my professional business for the present, in consequence of ill health, I do with pleasure refer those who have confidence in me, to Dr. J. M. Riggs, whose professional qualifications in my opinion are not surpassed by any Dentist in the country. This is strong language, but it is said solely for the benefit of my friends who may require any operations on the teeth in my absence.

H. Wells.

13wd&w86”

“Hartford, April 5, 1845.

This arrangement lasted, according to Riggs' day book, from April 1, 1845, to September 1, 1845. Riggs allowed Wells \$25.00.(16)

April-May, 1845. Arranged a "Panorama of Nature" which was exhibited for some time in the City Hall, Hartford.

May. Conversations with Hon. James Dixon regarding his (Wells) discovery of the pain relieving properties of nitrous oxide.

June 2, 1845, this ad in the *Hartford Courant*, Vol. 9, No. 129, page 3, announced the opening of:

"WELLS' PANORAMA OF NATURE"

"H. WELLS will give a series of Entertainments, embracing the subject of Natural History, at the CITY HALL, commencing THIS EVENING, Monday, June 2d.

"Major Hamilton's Brass Band will be in attendance.

"Single tickets 25 cents. Tickets admitting a Lady and Gentleman, 37½. Children under 12 years of age at half price.

"Doors open at 7½—commence at 8 o'clock.

"Hartford, June 2, 1845.

dtf"

(This notice was repeated June 3, 4, 5, 1845.)

Letter to Miss Mary E. Wells, Meriden, N. H., from her mother, Betsey Wells Shaw. (6)

"Westmoreland, June 17, 1845

"Dear daughter,

"As Mr. Starkey is about to go to Meriden and believing that you would be happy to hear from home and friends, I will give you a brief history of them, for I find but little time for letter writing. We are all in usual health your father's foot I believe is well. Capt. Cole & children returned the next day after you left & the first word that E. said was where is aunt Mary, if she was here I would sleep with her now. & the next Thursday we had quite a little party. General Cobb & wife, Deacan Howe & wife, Abiather Howe & wife, S & wife, Capt Cole & children & was expecting more but they did not come, & . . . Last sabbath I received a letter from Horace & one from Charles I need not tell you they were very acceptable. H. says he is neither sick nor well & is at present a loafer, but says he is uneasy as a fish out of water, with nothing to do, but is satisfied it is his duty to give up all care until he is better, & is thinking of going to the sea shore this week & if that does not do him good, he does not know but he shall come up to Westmoreland & rusticate among the hills of N. H. he says his wife is much better than usual & Charley is as healthy as he could wish.

"E (Elizabeth) wrote a few lines & says Dr. Taft says there is nothing to hinder H. (Horace) doing well if he will take medicine & attend to him

self. He has examined his lungs & says they are not diseased but weak. but they do not tell whether he has a cough or not or pain in the side. if H goes to the sea shores I think it will terminate soon whether his lungs are affected or not. they did not write whether E was going with Horace or not. but they both spoke of coming here E said she would write very soon. I hope you will write me as soon as you receive a letter from her & tell me all she says about them selves for I shall feel as anxious as ever to hear from H. Charles says he expects you are at Meriden for he had just received a paper from you. & likewise he saw Mrs. Stimpson & she told him that you called on her, on your return to Meriden he says he cannot say whether he shall be able to make us a visit this summer or not but should like to & perhaps he may.

"Give much love to Elizabeth. . .

In haste from your aff. Mother

B. Shaw"

June 18, 1845, P. W. Ellsworth, M.D., published an article in the *Boston Medical and Surgical Journal*, Vol. XXXII, No. 2, "On the Modius Operandi of Medicine." On pages 396 and 397 he says: "The nitrous oxyd gas has been used in quite a number of cases by dentists, during the extraction of teeth, and has found by its excitement, perfectly to destroy pain; the patients appear very merry during the operation, and no unpleasant effects follow." Dr. Ellsworth lived in the same house with Dr. Wells at this time. It is to be regretted that Dr. Ellsworth did not specifically mention the names of these dentists.

July. Morton travelled to Hartford and conferred with Wells and Riggs concerning the manufacture and use of nitrous oxide and also to settle financial accounts with Wells.(16)

Morton states Wells was arranging an exhibition of birds at the time of this visit. This was probably part of the "Panorama of Nature."(16)

August 29, 1845. This notice was published in the *Hartford Courant*, Vol. 9, No. 205, page 3:

"DENTIST"

"H. Wells, Dentist, having taken rooms at No. 14 Asylum Street, a few doors from Main Street, will resume his professional business on Monday, September 8, 1845. d&wtf 6"

September 8. Resumed practice in Hartford, at 14 Asylum Street. Entries in Day Book for September 10th, 11th, 12th, 15th, 16th, 23rd, and 26th.(12)

October 9th, 10th, and 12th, entries in Day Book.(12)

Horace's sister Mary married John Cole, a sea captain of Westmoreland, N. H., on October 9, 1845.

November 5th. Entry in Day Book.(12)

At this time a new idea germinated in Horace's fertile and active brain, the idea of an automatic shower bath. He gradually stopped practicing again and spent all his time in the development of this "new and improved shower bath." Unfortunately there arose a controversy over this invention with a Col. Thomas Roberts, a tin and sheet iron manufacturer and stove dealer who claimed he had the idea before Horace did. However, the dispute was settled by arbitration with Francis Parson, Esq., but not until Horace agreed to a compromise.

The two men in March of this year entered into a partnership for the manufacture and sale of shower baths. The manufacturing end was handled by Col. Roberts and Horace Wells travelled through the New England States and New York establishing dealers for the sale and distribution of his shower baths. A drawing and specifications of this shower bath can be seen on pages 195-7. There is, however, one entry in his dental day book for April 4, 1846, showing charges for dental operations performed on that day. There are no more such entries in this book.

1846 —

Letter to Mrs. John Cole (Mary Wells Cole), Midland, Mass., from her mother, Betsey Wells Shaw.

"Westmoreland, April 7, 1846.

"Dear Mary:

"I received your kind letter last evening and agreeable to your request, I will hasten to answer it. I should be very happy to comply with your invitation if it was consistent at this present time, as the time is so near and I have made no arrangement for a journey so soon, I think I must decline . . . but I have engaged Jane to come in May and keep house whilst I could go

to Hartford. I feel as though I must go to see Horace and my sister that is so feeble this spring, as I have been talking so long about it. I was expecting to have gone last spring, but Horace was dodging about so that I knew not where to find him and in the fall it was not convenient for me to go and now I hardly dare think of it for I feel as though all things are uncertain. . . .

"Your letter did not come alone, it was accompanied by a letter from my long absent brother who I have not seen for twenty years, and likewise with one from Sophia—poor girl I do pity her. Oh how many they are to be pitted. Sophia is now at Amoskeag; She professes as much love for Charles (Horace's brother) as ever, but she says to marry one that could not love her and would marry only from the sense of duty, it was more than she could do, and says he is free as far as being released from his engagement, and can do anything for her or not, as he sees fit. I should like to write more if I had time.

"I do feel anxious to know what business that Horace is in I fear he will run to fast.

Your affectionate Mother

B. Shaw"

In the summer of 1846, on a visit to New York, Wells called on Dr. Valentine Mott, ". . . and made the fact known . . . of the influence of the Nitrous Oxyd or Sulphuric Ether to obliterate all consciousness of pain in surgical operations. . . ." (11)

Letter to Capt. John Cole, Medway, Mass., from his mother-in-law, Betsey Wells Shaw. (6)

"Westmoreland, May 4, 1846

"Dear Children, I will now write you a few hasty lines just to let you know that I am almost ready to start to Hartford. I shall mail this letter on my way to Hartford. . . . This morning your brother C. Cole just gave us a call said he should soon go to Medway. I have sent your mantle by him hope you will soon get it. This morning before seven oclock your grand father was on his winding way to Montpelier and Burlington. I think the first land that he will make will be at Strafford, although he pretended that it was no where on the way if he can get what he wants there I think he will go no further. . . .

"Horace was here about three weeks ago stayed only one night and part of a day. he appeared to be in pritty good health. he came up as far as Hinsdial on business. he has been studying out some new invention for showering and has sent on for a patant he is going largely into the business he came up to Hinsdail to make a contract for showering bath. he thinks

he is now on his way to fortune, but I fear he is building castles in the air which will soon burst. but I can do nothing but leave him in the hand of God. I must close for I have no more time to spare.

Your aff. Mother—B. Shaw”

Letter to Mrs. John Cole (Mary Wells Cole), Medway, Mass., from her mother, Betsey Wells Shaw.(6)

“Dear daughter

“Westmoreland May 30, 1846

“Having returned home the next saturday after your husband left here & learning that he had been here I was exceedingly sorry that I had lost the opportunity of seeing him. . . . I suppose you have received the few lines that I wrote you just before I went my journey & now I will give you a brief history of my journey. I started from Westmoreland about six o'clock, P.M. had a pleasant journey down arrived at Hartford about half past two the next day in the after noon on Thursday had a very pleasant visit on Friday. Horace got a carriage & took Elisabeth Charley & myself & we all went out to West Hartford to make a call on Uncle had a very pleasant call. On saturday I left Hartford to visit my friends in West Windsor & on Monday morning I found I had a very bad cold seated on my lungs so that it was much exerion that I could speak a loud word. I found it such hard work to talk & I felt so unwell that I hastened my visits & returned home sooner than I should. . . . Well as to Grand father he returned from his voyage to the north the night before I did with blighted prospect. but he is like all other mariners he intended to cruise again. I think we must call him a man of great courage & perseverance. Oh that God would direct his steps & reconsile him to his will. he is now waiting for his horse to recrute. expect to start for the State of Maine next tuesday probably he will call on you on his way home if he ever lives to returns. I expect to send this scrible by him. . . .

Your aff Mother

B. Shaw”

Mrs. Wells writes to her brother, Joseph Wales, and Horace Wells adds two paragraphs. It is recorded in some of the early descriptions of Horace Wells that he “seldom sought general society.” That this is entirely wrong is again proved by the following letter in which he tells of joining the Odd Fellows.

Letter of September 20, 1846 (no address), to Joseph Wales, Elizabeth Wells' brother.(6)

“My dear brother:

“Sept 20th, 1846

“I have nothing to write about but as you are so anxious to hear from

Hartford I will say a few words. I have had a short visit from Livia this week, she started for Alabama last Thursday. (Sept 17/46) She did not expect to leave before October. Her Mother is feeble, her complaint is a disease of the heart, she may live years and may not a month. I am expecting a visit from brother Charles this week, we are not in a very inviting plight for visitors but they must take what they can get. Cattle Show and Fair comes on soon and we have engaged Ann Morse to stay a few days. I suppose the folks from the country will favor us with a call, and that lovely critter must be waited on, but I dont do it. Do you hear anything from Lem and family. Horace has opened his old office and is now engaged in dentistry. Mr. Gill has given up business here and is going into business in Boston. Edward Cooke of N. Y. died at our insane Retreat a day or two since. I must say Good Night and give room for Horace I believe Aunt Ba has a letter commenced to you.

Your affc. sister E. W."

"Brother Joseph

"I have nothing very especial to write yet I will say a few words, I have taken my old office for the practice of Dentistry again, how long I shall continue at it is very uncertain. I have also joined the 'Odd Fellows' and am thus far very much pleased with their proceedings. I am well aware that I was odd enough before, but this extra touch of oddity will do me no harm, on the whole I believe it to be a useful society its name is not a good one and should be changed. My Patent has not come yet¹¹ and I understand it will not before November and perhaps not then. I wish you would not let Cutler and Robinson know that I have sent you a bath for they might make difficulty in consequence of it.

Yours in haste H Wells"

October 19, 1846, Morton wrote to Wells concerning his new "compound" for putting patients to sleep. (16) (20)

"Boston, October 19, 1846

"Friend Wells:

"Dear Sir:—I write to inform you that I have discovered a *preparation* by inhaling which a person is thrown into a sound sleep. The time required to produce sleep is only a few moments, and the time in which persons remain asleep can be regulated at pleasure. While in this state the severest surgical or dental operations may be performed, the patient not experiencing the slightest pain. I have *patented* it, and am now about sending out agents

¹¹The patent, No. 4836 for Shower Bath, was issued to Dr. Horace Wells of Hartford, Connecticut, on November 4, 1846.

to dispose of the right to use it. I will dispose of a right to an individual to use in his own practice alone, or for a town, county or state. My object in writing you is to know if you would not like to visit New York and the other cities to dispose of rights upon shares. I have used *the compound* in more than one hundred and sixty cases in extracting teeth, and I have been invited to administer it to patients in the Massachusettes General Hospital, and have succeeded in every case.

"The Professors Warren and Hayward have given me certificates to this effect. I have administered it in the hospital in the presence of the students and physicians—the room for operations being full as possible. For further particulars I will refer you to extracts from the daily journals of this city which I forward to you.

Respectfully yours,

Wm. T. G. Morton"

October 20, 1846. Sent letter to Morton in reply to Morton's announcement of a "new compound."

"Hartford, Connecticut, Oct. 20, 1846

"Dr. Morton—Dear Sir:

"Your letter, dated yesterday is just received, and I hasten to answer it, for fear you will adopt a method in disposing of your rights, which will defeat your object. Before you make any arrangements whatever, I wish to see you. I think I will be in Boston the first of next week, probably Monday night. If the operation of administering the gas is not attended with too much trouble, and will produce the effect you state, it will undoubtedly be a fortune to you, provided it is rightly managed.

"Yours, in haste,

H. Wells."

October 24, 1846. Saturday, Dr. and Mrs. Wells arrived in Boston.

Wells visited Morton and observed the administration of the "compound" to several patients for the extraction of teeth. On his return, Mrs. Wells details the following conversation: "I asked him," she says, "whether Morton had discovered anything new?" He replied: "No! it is my old discovery and he does not know how to use it."(11)

October 26, 1846. Monday—Dr. Wells and his wife returned to Hartford.

Letter from Elizabeth and Horace Wells to Mother Shaw. (Note at top is by Horace's seven-year-old son). (6)

"DEAR GRANMA

"I GO TO SUNDAY SCHOOL AND THER IS 58 SCHOLARS.
THIS IS CT WELLS WRITEING"

"Dear Mother:

"Hartford, Nov. 9, 1846.

"Your kind letter was truely welcome and if it had been written in letters of gold, it would have not been any more welcome. We had one from Mary the same evening and also from Brother William, so I had quite a feast. So it seems Granpa has been successful and tomorrow is the happy day. I should like to have a peep at him this afternoon. I am sure I should see a happy face. If I am not mistaken I have seen Mrs. Foster. Horace has turned dentist and it seems like old times to have him home again. His health is good and he boasts that he weighs more than he ever did. We had a very pleasant visit from Charles. I introduced him to several young ladies, but they did not suit him. The one I wished him to see lives in Bridgeport. I know he could not resist her.

"My Charley is getting to be a great boy. He attends school and learns quite fast. He does not forget his Branma or Westmoreland and laughed heartily when I read him about the pickeral. I intended to have written a long letter, but my eyes trouble me so badly I must leave Horace to finish my part. I have suffered considerable the last week and have done little also but knit. They trouble me as they did six years since. Excuse my blunders and remember me to Father and Grandpa.

Your affectionate daughter

E. W.

"This is a poor answer to your long kind letters, but I will do better as soon as my eyes will allow it."

"Dear Mother

"I am at last seated to write a few words to you after so long a time. Well I suppose you are anxious to know how my \$10,000. speculation has turned out. In the first place I have not made half that sum, and in the next place I do not know myself yet how much I have made for my business is not yet entirely closed up. The reason why I have not made as much as I anticipated because I had a great difficulty in getting my patent through. Indeed, it was not granted until last week. But the greatest drawback on my success was in consequence of the opposition I met with by that scamp Mr. Roberts whom tried so hard to cheat me out of half of the patent when you was here. I supposed then it was all settled, but he sent off immediately

to the large places where I was making my trades and frightened them from making a trade with me wherever he could. When I wrote you last I had just commenced operating. I then informed you of some large trades I had made and everything looked cheering, but before those trades were all closed he was on hand to throw on cold water. The only way I could get my patent through at this time was to complemise the matter with him and have him withdraw his claim, and as I have not yet collected all my dues I cannot say how much is made out of the operation. There will be any quantity of shower baths in operation next season; there have been lots of them started on the strength of my success. I would not give a strw for the business next year. We had a letter from Mary last week. All well. I am now getting ready to start for New York and Boston to close up my business there, which was agreed to be settled when I got my patent. You must therefore excuse this scrawl.

Yours, H. W."

November 4, 1846. Patent No. 4836 for a shower bath issued to Horace Wells. For a copy of the plans and specifications of this invention, see pages 195-7.

November, 1846. Wells sold out his shower bath business to Col. Thos. Roberts.(16)

December 9, 1846. Published claim as discoverer of anæsthesia in *Hartford Courant*, as follows:

"Hartford, Dec. 7, 1846.

"Mr. Editor:—You are aware that there has been much said of late respecting a gas, which, when inhaled, so paralyzes the system as to render it insensible to pain. The Massachusettes General Hospital have adopted its use, and amputations are now being performed without pain. Surgeons generally throughout the country, are anxiously waiting to know what it is, that they may make a trial of it, and many have already done so with uniform success. As Drs. Charles T. Jackson and W. T. G. Morton, of Boston, claim to be the originators of this invaluable discovery, I will give a short history of its first introduction, that the public may decide to whom belongs the honor.

"While reasoning from analogy, I was led to believe that the inhaling of any exhilarating gas, sufficient to cause a great nervous excitement, would so paralyze the system as to render it insensible to pain, or nearly so; for it is well known, that when an individual is very much excited by passion, he scarcely feels the severe wounds which may at the time be inflicted, and the individual who is said to be 'dead drunk', may receive severe blows, appar-

ently without the least pain, and when in this state, is much more tenacious of life than when in the natural state. I accordingly resolved to try the experiment of inhaling an exhilarating gas myself, for the purpose of having a tooth extracted. I then obtained some nitrous oxide gas and requested Dr. J. M. Riggs to perform the operation at the moment when I should give the signal, resolving to have the tooth extracted before losing all consciousness. This experiment proved to be perfectly successful—it was attended with no pain whatever. I then performed the same operation on twelve or fifteen others with the same results.

“I was so much elated with this discovery, that I started immediately for Boston, resolving to give it into the hands of proper persons, without expecting to derive any pecuniary benefit, therefrom. I called on Doctors Warren and Hayward, and made known to them the result of the experiments I had made. They appeared to be interested in the matter and treated me with much kindness and attention. I was invited by Dr. Warren to address the Medical Class upon the subject, at the close of his lecture. I accordingly embraced the opportunity, and took occasion to remark that the same result would be produced, let the nervous system be excited sufficiently by any means whatever; that I had made use of nitrous oxide gas or protoxide of nitrogen as being the most harmless. I was then invited to administer it to one of their patients, who was expecting to have a limb amputated. I remained some two or three days in Boston for this purpose, but the patient decided not to have the operation performed at the time. It was then proposed that I should administer it to an individual for the purpose of extracting a tooth. Accordingly a large number of students, with several physicians, met to see the operation performed—one of their number to be the patient. Unfortunately for the experiment, the gas bag was by mistake withdrawn much too soon, and he was but partially under its influence when the tooth was extracted. He testified that he experienced some pain, but not as much as usually attends the operation. As there was no other patient present, that the experiment might be repeated, and as several expressed their opinion that it was a humbug affair, (which in fact was all the thanks I got for this gratuitous service), I accordingly left the next morning for home.—While in Boston, I conversed with Drs. Charles T. Jackson and W. T. G. Morton upon the subject both of whom admitted it to be entirely new to them. Dr. Jackson expressed much surprise that severe operations could be performed without pain, and these are the individuals who claim to be the inventors. When I commenced giving the gas, I noticed one very remarkable circumstance attending it, which was, that those who sat down resolving to have an operation performed under its influence, had no disposition to exert the

muscular system in the least, but would remain quiet as if partially asleep. Whereas, if the same individuals were to inhale the gas under any other circumstances, it would seem impossible to restrain them from over exertion.

"I would here remark, that when I was deciding what exhilarating agent to use for this purpose, it immediately occurred to me that it would be best to use nitrous oxide gas or Sulphuric Ether. I advised with Dr. Marcy, of this city, and by his advice I continued to use the former, as being the least likely to do injury, although it was attended with more trouble in its preparation. If Drs. Jackson and Morton claim, that they use something else, I reply that it is the same in principle if not in name, and they cannot use anything which will produce more satisfactory results, and I made those results known to both of these individuals more than a year since.

"After making the above statement of facts, I leave it for the public to decide to whom belongs the honor of this discovery.

Yours truly,

Horace Wells, Surgeon Dentist."

December 10. Wrote to Morton as follows:

"Dear Morton:

"I have just seen a copy of your claim, and find that it is nothing more than what I can prove priority of discovery (to) by at least eighteen months. When in Boston, at your room, I was well satisfied that the principal ingredient was ether, and, to all appearances, it had just the effect of this alone on the patient to whom I saw it administered in your office. Now, I do not wish, or expect, to make any money out of this invention, nor to cause you to be the loser; but I have resolved to give a history of its introduction, that I may have what credit belongs to me. Although it is in my power to invalidate your patent, by a word, yet, as long as we remain on good terms, I shall not aim to do it. . . ." (15)

(The balance of this letter was deleted.)

Letter of December 15, 1846, to Joseph Wales, Esq., 28 India Street, Boston, Mass., from Horace Wells. (6)

"Hartford Dec. 15, 1846

"Brother Joseph

"Your letters came duly to hand and in reply would state that you was as successful as could be expected—for you know it costs a good round sum to fit up a new room and all the resources the poor man has to meet it is but twenty thousand dollars a year which he often states is the amount of his business. Well I wish you would keep the note and follow him up as often as you deem expedient. You will probably get it all the first of Jan? If

you should be so fortunate to get anything please to send it to my address 117 Main St. I shall start for New York on Monday next. Nothing new in Hartford and all send love.

Yours in haste H. Wells"

December 18, 1846. Wrote to Hon. James Dixon for a passport for his trip abroad.⁽¹³⁾ The object of this trip was to purchase paintings for resale in the United States and to present his claims as the discoverer of anesthesia.

It is interesting to note Wells' description of himself in this letter. He gives his age as 32 years when actually he would not be 32 until five weeks later, January 21, 1847. On receipt of Wells' letter, Dixon sent it with one of his own to the Hon. James Buchanan, Secretary of State. An error enters here because of the duplication and addition of information by Dixon: Wells' age is given incorrectly as 35, and his profession as physician. This error on the part of Dixon explains why U. S. Government Passport No. 1485, issued on December 19, 1846, to Horace Wells, M.D., contains these inaccuracies, although the M.D. has been marked out with crosses. The passport now hangs in the Hartford Dental Library.

December 19, 1846, passport #1485 issued to Horace Wells by State Department, U. S. A.⁽¹³⁾

December 22, in the Hartford *Daily Times* (No. 1854, p. 3), appears a partnership notice of Horace Wells and J. B. Terry.

"DENTISTS

"Hartford, Dec. 19, 1846

"The subscribers having associated themselves in the business of Dental Surgery, respectfully invite all who may require the service of Dentist to call at their rooms, 180½ Main Street, where all operations will be performed in a faithful and workmanlike manner.

Copartnership Notice
dec 22 eodsmw 3m66

Horace Wells
J. B. Terry"

December. Sailed for Paris from New York.¹²

¹²Exact date of departure is unknown. Mr. Byron H. Ahl, District Director, U. S. Department of Labor, Immigration and Naturalization Service, Ellis Island, New York Harbor, N. Y., advises me that: "No records of departing passengers are available prior to March, 1929."

Letter to Dr. Horace Wells from his wife sent to "Dr. Horace Wells, care of Messrs. Hotinguer & Co., Paris, France. By steamer." (Written on the back of page which was folded and sealed thus forming the envelope: "I wish I could get inside of this and come to you, don't you?") (6)

"Hartford Dec. 27th 1846

"My dear husband,

"I received your two letters and I now realize so much your absence, that I hasten to write you and then perhaps I shall feel the distance between us a little more diminished, in imagination at least. In the first place we are all well except Charley who has not yet entirely recovered from Christmas rejoicing. He is looking forwards to New Years and sighing for father to get him presents. We have had quite a mild spell of weather and I assure you the weather vane is watched pretty closely to see if the wind is in the right direction to carry you safely, just as if, I here in Hartford could tell the weather at sea. I called yesterday at Mr. Churchs and unexpectedly met Frederick, he has sold his large painting. The Emmigration of Hooker to our Institute for \$130 and is now painting for Dr. Beresford. He leaves this week for N. Y. I have plenty of calls from my friends brimful of sympathy and a long one from Mrs. Buer. She says you will get woefully cheated by the interpreters if you are not careful, and I have had it from others beside her. So look out, and also carry as little that is valuable about your person as possible or you will get robbed before you know it, and be careful of what acquaintences you make for their greatest rogues have the most polite manner to strangers. How do you come on with the language, Can you ask for beef steak. Excuse my advice I have it from others and you may have it gratis. I believe you have taken all my courage with you as I am sadly worried about you and I shall not think you safe till I get you safe home again.

(Written on margin of page 1: "The way the interpreters cheat, they charge so much a day and they get the one you bargain with to charge you extras and pay them for carrying you to the person".)

"I must congratulate you about getting away before Uncle received a budget from England about his ancestors. He brought it in this week and it traces back ever so long and the Hender family have been some of them great big folks. Lords, Knights, Barons, etc., without number and the coat of arms too. It seems he sent to England some time since, and probably you would have had a special request to visit among their former glories if you had not been so fortunate as to get away, but I forget it has not as yet

touched the Wales family. Our Hartford friends are getting quite interested about the gas war. Mrs. Ellsworth has promised me the reading of the medical papers, one came last evening but I have not got it yet. Bigelows peice is copied in the Courrent of this week. 'Now comes the tug of war' and we will see who wins. I believe Uncle is as much interested as any one, in having you win. From what I hear it seems she is determined to set him against us, and I know he is pretty well tied up. We will see what two or three years will do. I predict he will get his eyes open by that time. Your friend Dr. Terry is quite kind and attentive, poor soul, he told me speaking of your leaving for such a long voyage, that his wife was unwilling he should be absent one night. Charley has stood here waiting to write you, that he has got out of temper and gone to bed. He has a vacation this week and with the Christmas party has about upset him. I gave him two books and confectionary and he was 'so happy'. He intends to do wonders before you return and when you write answer his letters or he will be quite indignant. I get quite laughed at when I tell our freinds I shall not hear from you for 40 or 50 days they say you have stretched it. I must say Good night and give my eyes a little rest. Pleasant dreams."

"Dec. 28th

"How do you do this evening! I wish you would answer me, I imagine I could hear you. To day old Mr. Whitman has been buried the old gentleman who has been so long with Mr. Robins in the Institute. He was buried in the old back yard of the Center Chirch. Mr. Johnson is quite feeble threatened with the lung fever and three or four of the family are also sick. Do you know it is just one week today since you left us, Charley cannot realise you being away so far. He commenced learning to write to you today and ended by making St. Nicholas with a little round belly which shook when he laughed like a bowl of jelly. He says that as Aunt Ba has, I shall leave him space to speak for himself, here he comes.

"I want to tell you about Mrs. Browns party. We had candies wrapped up in fringed paper and cakes with little round sugar plums on them. We played blind mans buff and drop the handerchief. CHARLES.

"I think they had a jolly time. I heard they numbered 57 . . . (section torn out of letter(. . . the same time. Dr. Hawes attended. Mrs. Ellsworth has just told me, that the Dr. says there is nothing important in the journal of this week, no answer to either peice but some accounts of more operations performed. He is waiting for an answer to your peice or his. Now Horace I wish you would be punctual and write as often as possible. Dont think me foolish. I have as much courage as possible during your absence. Your letters will do me more good than you are aware. Even

writing this has done me much good. Our folks say I have acted today as if I had a load off my heart. If you are sick let me know. It will be better than suspense. Now mind what I say. Terry has just called and left two papers from Joe. I shall send with this the Philadelphia paper. He sends love. Charley lies here fast asleep on the sofa, he has been brimful of mischief today. Your aff wife.

Elizabeth W."

(Written on margin of last page: "Can you study now without being bothered or will this long epistle interrupt your machinery.")

1847 —

Hon. James Dixon protests to a select committee of the House of Representatives against that committee rendering a favorable decision regarding Morton's claims as the discoverer of anesthesia until he had an opportunity to present Wells' claims. (16)

February, 1847. Horace Wells presents "his claim to the discovery of performing operations without pain" to the "Academie de Sciences" and the "Academie de Medecine" and the "Parisian Medical Society." (See Brewsters letter under March 26, 1847, date-line.)

February 17. Published the following article in *Galignanis' Messenger* while in Europe. (This article was reprinted in the *Boston Atlas*, April 2, 1847, columns two and three, page 2.)

"Paris, Feb. 17, 1847.

"Sir:—As you have recently published an extract from the Boston Medical and Surgical journal, which recognises me as the discoverer of the happy effects produced by the inhalation of exhilarating gas or vapor for the performance of surgical operations, I will now offer some suggestions in reference to this subject. Reasoning from analogy, I was led to believe that surgical operations might be performed without pain, by the fact that an individual, when much excited from ordinary causes, may receive severe wounds without manifesting the least pain; as, for instance, the man who is engaged in combat may have a limb severed from his body, after which he testifies that it was attended with no pain at the time; and so the man who is intoxicated with spirituous liquor may be treated severely without his manifesting pain, and his frame seems in this state to be more tenacious of life than under ordinary circumstances. By these facts I was led to inquire if the same result would not follow by the inhalation of some exhilarating gas, the effects of which would pass off immediately, leaving the system none

the worse for its use. I accordingly procured some nitrous oxide gas, resolving to make the first experiment on myself, by having a tooth extracted, which was done without any painful sensations. I then performed the same operation for twelve or fifteen others, with the like results; this was in November, 1844. [Author's note: Dr. Wells was mistaken in his dates.] Being a resident of Hartford, Connecticut, (U. S.,) I proceeded to Boston the following month, (December), in order to present my discovery to the medical faculty—first making it known to Drs. Warren, Hayward, Jackson and Morton, the two last of whom subsequently published the same, without mention of our conference. Since this discovery was first made I have administered nitrous oxide gas and the vapor of ether to about fifty patients, my operations having been limited to this small number in consequence of a protracted illness which immediately ensued on my return home from Boston, in January, 1845. Much depends on the state of mind of the patient during the inhalation of gas or vapor. If the individual takes it with a determination to submit to a surgical operation, he has no disposition to exert the muscular system; whereas, under other circumstances, it seems impossible to restrain him from over exertion; he becomes perfectly uncontrollable. It is well to instruct all patients of this fact before the inhalation takes place. The temperament and physical condition of the patient should be well marked before administering the vapor of ether; persons whose lungs are much affected should not be permitted to inhale this vapor, as serious injuries have resulted from it in such cases. Nitrous oxide gas, or protoxide of nitrogen, is much less liable to do injury, and is more agreeable to inhale, producing at the same time equal insensibility to all painful sensations. It may be taken without the least inconvenience by those who become choked almost to strangulation with ether; in fact, I have never seen or heard of a single instance where this gas has proved in the least detrimental. This discovery does not consist in the use of any one specified gas or vapor; for anything which causes a certain degree of nervous excitement is all that is requisite to produce insensibility to pain. Consequently, the only question to be settled is, which exhilarating agent is least likely to injure the system. The less atmospheric air admitted into the lungs with any gas or vapor the better—the more satisfactory will be the result of the operation. Those who have been accustomed to use much intoxicating beverage cannot be easily affected in this manner. With cases of dislocated joints, the exhilarating gas operates like a charm; all the muscles become relaxed, and but a very little effort will serve to replace the limb in its socket, and while the operation is being performed the muscles do not contract as when in the natural state, but are as easily managed as those of a corpse. Allow me to add that

I have had no opportunity of reading any of the French professional reports or discussions on this subject. I shall remain in Paris until the 27th inst., and in the interval I should be pleased to impart such information as I may have acquired by a close observation of the various phenomena connected with this interesting subject.

Horace Wells."

February 27. Left Paris for London.(16)

March 4. Sailed from Liverpool in the *Hibernia* for Boston.

March 8. Wells' Memoir was read before the Academy in Paris.(16)

March. Returned from England.¹³ Had conferences in Boston with Warren and Hayward.(15)

March 26. The Boston *Transcript* copied, in column one, page 4, by request, Dr. Brewster's letter from the column of the foreign correspondent of the *New York Journal of Commerce*:

"Paris, March 1st, 1847. The all absorbing topic of conversation in the Saloons of Paris, and the all engrossing discussions in the learned and scientific Societies here, as in most of Europe, is our 'American discovery' of performing surgical operations without pain. All the nations, I might almost say, all the individuals, are trying to claim the merit of the discovery.

"Numberless communications are published from persons who knew all these things long ago, 20, 30 and 40 years since, yet to the present moment, they have not succeeded in wresting the honor of this discovery (the greatest ever given to man since the days of 'Jenner,') from the western world.

"I have seen in your paper of the 30th December last, a letter from Doctor Marcy, which gives the whole honor to Dr. Horace Wells, dentist of Hartford. I have also seen in the 6th January, Dr. Jackson's reply, and the rejoinder of Dr. Marcy, in the 8th. In the 'Boston Medical and Surgical Journal' I see a letter which gives the discovery to Dr. Wells. These are things which I hope you will settle fairly on your side of the water, and let 'Caesar have the things which are Caesar's.'

"Dr. Wells has been for the last few days in Paris. His claims to the discovery of performing operations without pain, have been presented to both the 'Academie des Sciences,' and the 'Academie de Medecine,' where they are under consideration. He has likewise been before the 'Parisian Medical Society,' and related the history, progress, and final result of his

¹³Exact date not known. Mr. John H. Jensen, Inspector in charge of Immigration and Naturalization, U. S. Department of Labor, East Boston, Mass., writes: ". . . please be informed our records go back only to 1848."

discovery; I was present; the Society were of opinion, that if Dr. Wells brought forward proofs that he had performed the extraction of teeth in 1845 without pain, then he would be entitled to the merit of being the discoverer.

"Imagine to yourself, Messrs Editors, a man to have made this *more than brilliant discovery*, visiting Europe without bringing with him the proofs. Dr. Jackson acted much more wisely, when he claimed the discovery; for he wrote to the 'French Institute,' his letter bore the Boston, Liverpool, and the French post-marks, then it was sealed by the Institute, its receipt recorded, and left sealed until ordered to be opened. Had Dr. Wells done the same thing in Nov. 1844 his claim would not now admit of a doubt. Whether he used the nitrous oxyde gas, or sulphuric ether, matters but little, inasmuch as their results are the same, and he seems after having tried them both, to have given the preference to the gas, as being more agreeable to inhale. Other kinds of ether have since been tried here, but none pretends to claim the merit of the discovery by using a new substitute. Though there are some persons skeptical as to its ultimate value, I have used it in many cases with perfect success, and have seen some of the most painful operations in surgery performed in our hospitals without the patients feeling the slightest pain. No country in the world offers the same facilities as France for testing the value of any discovery in the medical science. Here man and beast are made subservient to the rigors of experimental proof. When this discovery was first mooted, some feared danger from fire, that the breath would ignite and the lungs explode; but the many experiments made at Alfoet upon horses who had been made to inhale the ether, prove that when the lamp is applied to the mouth immediately after inhalation, a blue flame burns exteriorly, but soon expires without the slightest harm or danger.

"As an American I feel proud that this discovery originated in my native land, and regret that any efforts should have been made to rob the rightful discoverer of his just due.

Very truly yours,

Brewster."

March 30. Published "History of the Discovery of the Application of Nitrous Oxide Gas, Ether, and other Vapors, to Surgical Operations." J. Gaylord Wells, Hartford, 1847.

March 30. Forwarded the original testimonials and affidavits and other papers contained in the above volume to Dr. C. S. Brewster, No. 11 Rue de la Paix, Paris, to be presented by him to the scientific and medical societies of Europe in order that Wells priority in the discovery of anesthesia could be established.(9)

April 2. Article in *Galignana's Messenger* republished in the Boston *Atlas* bearing a Paris Feb. 17, 1847, date line.

Letter from Elizabeth and Horace Wells to her brother, Joseph Wales. (6)

"Monday eve April 12th 47

"Dear Joseph,

"I suppose you think yourself quite forsaken, but I have been so busy that you must excuse me. Horace has just returned from New York, received the great letters of Dr. M's and today is writeing an answer.

"Thomas Day, Putman's brother has written to H and volunteered to assist him. So you can get all information. What do you think of the book, have you seen any in Boston. The Express took on a bundle to distribute, also to N. York, Philadelphia, Baltimore, & Albany. A large bundle went by steamer to London & Paris. Hartford folks are wide awake and say Horace will get it. He had a letter from the Army and Navy committee makeing enquiries concerning the gas. I suppose you are aware that Dr. Jackson petitioned Congress for one hundred thousand dollars, & our Mr. Dixson stopped the whole and gave the claim to H. I have stopped writeing to look at some beautiful oil paintings which have arrived today. They are beautiful in the real sense of the word. We cannot get any of the letters which are written for our side. Horace goes to the office but they are gone. I have not seen Dr. Brewsters or Burritts.

"Aunt says tell Joseph I have been trying to write and intend to write soon. Isaac Norton was here to day trying to get a situation, he says Edward is worse and they some expect Livia home this fall. I must bid you Good bye as tea is ready and will write again soon. We are makeing up a bundle of clothing for Ireland, Humphrey & Leyms, and Ed Parsons receive all that is to be sent.

Good night

your sis Lib"

"Brother Joseph—I have written an answer to Morton's piece in the 'Post' which will undoubtedly appear in the course of two or three days, I wish you would keep watch and when it is published buy me 4 or 5 papers and send them to me as I wish you would also send me as many papers containing Morton's piece for if he has sent it out to Europe I wish to send them papers containing his article with my reply which will knock him into a cocked hat—

yours in haste

"N.B. Buy all the papers containing 'gas' and send them to me—Keep an account of the cost including postage—H."

April 22. Letter written by Wells to the editor of the *Boston Post*, Vol. 30, No. 95, page 1, referring to a long article which appeared in the April 7, 1847, issue and signed E. W. (Probably Edward Warren, Morton's representative):

"TO THE EDITOR OF THE BOSTON POST

"Hartford, April 19, 1847

"I have just seen a long article in your paper of the 7th inst, signed E. W., which I will answer in one word. The letter which is there introduced with my signature was written in answer to one which I received from Dr. Morton, who represented to me that he had discovered a 'compound,' the effects of which as described by him, entirely eclipsed those produced by nitrous oxide gas or sulphurate ether, he stating that his 'compound' would *invariably* produce a sound sleep, the length of which was wholly optional with the operator; that he had not made a single failure in one hundred and sixty cases, &c., &c. He also stated that he had obtained a patent for this 'compound'. I accordingly started for Boston to learn more of this improvement on my discovery, with which I had made him acquainted long before.

"While at his office I saw the (so called) compound administered to a patient; it apparently had the same effect as the gas, which I had many times administered for the same purpose. Before I left for home the gas was given to several other patients with but partial success—at least so said the patients with whom I conversed. I then enquired about his patent, and found to my surprise that he had not obtained one, nor even made an application for one, this being done at a subsequent period, as the date of his specifications and patent clearly show. Respecting the interview which E. W. had with the Hon. James Dixon at Washington, I am informed by Mr. Dixon that the statement of E. W. in the article referred to, is a gross misrepresentation of the truth, and if necessary, he will sign a certificate to that effect.

Respectfully,

HORACE WELLS"

April. Wells went to New York and with his attorney went to the Custom House to get the paintings purchased in Paris. He also arranged with a manufacturer to have frames made.

May. The General Assembly of the State of Connecticut passed resolutions stating that Wells was the discoverer of anesthesia.

May 12. The following article appeared in the *Boston Medical*

and *Surgical Journal*, Vol. 36, page 298, 1847, dealing with the contents of the October 20, 1846, letter:

“THE DISCOVERY OF ETHEREAL INHALATION

“To the Editor of the Boston Medical and Surgical Journal.

“Sir,—Having seen an article, by Edward Warren, in the Medical Journal of the 28th April, which has special reference to myself, with your permission I will answer through the same medium, as briefly as possible.

“Mr. Warren, who is a gentleman in the office of Dr. Morton, seems to exult in the possession of a letter with my signature, which he has published. I am much surprised that Dr. Morton, for his own sake, should have permitted that letter to be published, for when *his* letter is read, to which mine was an answer, it places the whole matter in quite a different light. Dr. Morton, in his letter dated 19th October, 1846, gave me to understand that he had made a discovery which would entirely eclipse the one I had made. He says:

“I have discovered a *preparation*, by inhaling which a person is thrown into a sound sleep; the time in which persons remain asleep *can be regulated at pleasure*. While in this sleep the severest surgical or dental operations may be performed, the patient not experiencing the slightest pain. I have patented it, and am now sending agents to dispose of the right to use it. I have used this *compound* without a single failure in over one hundred and sixty cases, in extracting teeth. My object in writing you is to know if you would not like to visit New York and the other cities, and dispose of rights.

Respectfully yours,

W. T. G. Morton.’

“Now I would ask all who have made use of ether since its first introduction, on perusing the above letter, if they would for a moment imagine the discovery, as above described, to consist in the use of this article ether? On receiving the above letter, I went to Boston to learn the nature of this improvement on my discovery; I there saw Dr. Morton administer his (so-called) compound, and the patient, instead of going quietly to sleep, to be aroused at pleasure, as I had been informed would be the case, became exhilarated, succeeded by a stupor, the same as is produced by the inhalation of nitrous oxide gas. While at Dr. Morton’s office, three or four other patients inhaled the ‘compound,’ two of whom informed me that it was an entire failure. I thought this remarkable after his operating on one hundred and sixty patients ‘without a single failure.’ I then inquired about his patent, which the letter stated had been obtained for the compound, and learned,

to my surprise, that he had not obtained one, nor even made an application for one; as will be seen by the date of his letter to me, and the date of his application for a patent, the specification bearing date October 27th, 1846, and the date of his letter being 19th October, 1846. Mr. Warren states that I 'returned home, determined to have nothing to do with the business.' Now is it at all strange, after the above development of facts, that I acted thus? In the first place, what could I do in reference to his patent, for he had got none; and in the next place, after what I had seen, it was evident that this 'preparation' was no improvement upon my discovery (with which I had made him acquainted more than eighteen months before), even allowing it to be a 'compound.' In November, 1844, I made this discovery, and applied it with perfect success, as is proved by affidavits of the very first character. I have also proved that I went to Boston at that time to make my discovery known to the medical faculty, and addressed Dr. Warren's class upon the subject, and endeavored to establish the principle that the nervous system, when wrought up to a certain degree of nervous excitement by any means whatever, would become insensible to pain; then stating that I was using nitrous oxide gas for this purpose, considering it the most harmless. When I first made the discovery, rectified ether was used, as well as nitrous oxide gas. This is clearly proved by affidavit; but I preferred the latter as being more agreeable to inhale, and less liable to do injury.

"It is truly astonishing to see with what pertinacity Drs. Jackson and Morton adhere to their pretended priority of discovery, simply because I gave the preference to the nitrous oxide, after having tried both the vapor and the gas. It has been said that the rectified sulphuric ether vapor acts as a sedative merely, while the nitrous oxide gas only operates as a stimulant. This is a mistake, and no man who has ever made experiments with both the gas and vapor will make such an assertion. When I first administered the nitrous oxide for a surgical operation, I was astonished that the patient did not exert the muscular system, as is generally the case when taken merely for pleasure, and this proved to be the case in subsequent operations. That this is a remarkable phenomenon, is acknowledged by all who have made use of it for this purpose, and it is precisely so with the vapor of ether; both at first stimulate, then, when continued to excess, act as a sedative, producing a stupor. Several gases of this nature are now being used in Europe with perfect success. Does it follow that every one who makes use of a different gas is to be entitled to the credit of this discovery; or is it the one who first proved, by actual experiment, that one of these gases would have this wonderful effect? Every reasonable man will at once say that the *principle*, when fully demonstrated, constitutes the discovery. Both Drs. Jackson and Mor-

ton admit that they were fully aware that I had used nitrous oxide for this purpose long before the date they give as the time of their discovery. Suppose *A* makes the discovery that a certain degree of compression of the limb, with a cloth bandage, will so paralyze the limb that it may be amputated without pain, and he proves this beyond a doubt, presenting his discovery to the world. Soon after, we hear of *B*, proclaiming that he has made a wonderful discovery, which consists in the use of a leather strap to produce this compression, and he insists that it is nothing like the discovery of *A*, who uses the cloth bandage. Now these are parallel cases, and if each gas or vapor which may be used for this purpose is a distinct and independent discovery, then allow me to ask, where will it end? I informed Drs. Jackson and Morton of this discovery in November, 1844, both admitting that the idea was entirely new to them. Dr. Jackson particularly seemed inclined to ridicule the whole thing.

“Mr. Warren states that my experiment before the medical class in 1844, was a failure, and all pronounced it a ‘humbug.’ Now this is perfectly true. The gas bag was removed too soon, and the patient experienced some pain, and I was denounced as an impostor; no one seeming inclined to assist in further experiments. The excitement of this adventure immediately brought on a protracted illness, which compelled me to relinquish my professional business entirely. For this reason, and because I did not wish to incur the responsibility of administering this powerful agent without the co-operation of the medical faculty, my operations have been somewhat limited, but perfectly successful. I had operated on something like fifteen patients with the gas before having the interview with Drs. Jackson and Morton in November, 1844. After relinquishing my professional business in consequence of this illness, Dr. Morton requested me to prepare some of the gas for him. I told him to go to Dr. Jackson, as he was a chemist, and get it. The sequel is already known. In due time we heard of surgical operations being performed at the Hospital, without pain, by means of a secret ‘compound’, and Drs. Jackson and Morton announced as the discoverers. Ere long my discovery, which I designed should be free to all, is trammelled with a patent.

“Mr. Warren speaks of an interview which he had with the Hon. James Dixon. To show him that his memory sometimes proves treacherous, I will here give a copy of a letter which I have just received from Mr. Dixon.

“Hartford, May 5th, 1847.

“Dear Sir,—The communication of Mr. Edward Warren, of Boston, to which you have called my attention, is incorrect in several particulars. Mr. Warren, it seems, misunderstood my conversation with him. The per-

son whom I consulted with, in regard to the use of your discovery, was Dr. Riggs, of Hartford, and not yourself, and I so informed Mr. Warren.

Yours respectfully,

James Dixon.'

"Dr. Horace Wells, Hartford.'

"With the foregoing statement of facts, I close, wishing, in all sincerity, to receive no more credit for this discovery than what in justice I am entitled to.

Respectfully,

Horace Wells.

Hartford, May 5, 1847."

July 3, 1847. This announcement appeared in the *Hartford Daily Courant*, Vol. 11, No. 157, Whole No. 2917.

"DENTISTS

"Hartford, Dec. 19, 1846

"The subscribers having associated themselves in the business of Dental Surgery, respectfully invite all who may require the services of a dentist to call at their rooms, 180½ Main Street, where all operations will be performed in a faithful and workman-like manner.

Horace Wells

J. B. Terry."

May 27 d&wtf 97

August 21. Wells gave nitrous oxide for removal of testicle by Dr. E. E. Marcy. (This case was published in *Boston Medical and Surgical Journal* of September 1, 1847, No. 5, Vol. 37.)

August 28, 1847. The *Hartford Daily Courant* carried this notice:

"DENTISTS

"Notice:—Having associated with me in business, Dr. J. B. Terry, I cheerfully recommend him to my friends and patrons who may require dental operations in my absence. Those employing him may depend on having dental operations performed in a faithful and workmanlike manner.

Hartford, Aug. 28, 1847."

Horace Wells.

This is a copy of a receipted bill in Horace Wells' handwriting¹⁴ during the time he was selling the paintings that he brought from France:

¹⁴Original is in possession of Dr. Howard R. Raper, Albuquerque, N. M.

"Hartford, May 26, 1847

"Mr. D. Clark

c/o H. Wells, Dr.

"To paintings bought at Auction

vis, No 13	5.00
" " 61	4.50
52	4.25
72	11.50
22	10.00
23	10.00
18	6.75
19	6.75
51	4.00
Two flower pieces at private sale	20.00

 \$82.75

Rcd. Payt
H. Wells

1848 —

January 1. Wells administered nitrous oxide to Henry A. Goodale for the amputation of his leg. Operation was performed by Dr. P. W. Ellsworth. (Case reported by Dr. Ellsworth in the *Boston Medical and Surgical Journal*, June 17, 1848, Vol. 37, No. 25, page 498.)

January 4. Wells administered nitrous oxide to Mrs. Mary Gabriel for the "removal of a fatty tumor from her right shoulder weighing six and a half ounces. This was performed by Dr. L. B. Bernsford, assisted by Drs. Grant and Crary."(11)

January 17, 1848. Notice in *New York Evening Post*:

"H. Wells, Surgeon Dentist, the discoverer of the 'Letheon,' having removed to New York, will give gratuitous advice respecting the use of Chloroform, Nitrous Oxide Gas, and 'Letheon', as applied to the extracting of teeth from 10 o'clock A. M. until 3 o'clock P. M. Residence 120 Chambers Street, west of Broadway."

January 17, 1848. The *New York Herald* carried the following notice:

"TEETH EXTRACTED WITHOUT PAIN.—H. Wells, Surgeon Dentist, who is known as the discoverer of the wonderful effect of ether and various stimulating gases in annulling pain, would inform the citizens of New York, that he has removed to this city, and will for the present attend personally to those who may require his professional services. It is now over three years since he first made this valuable discovery, and from that time to the present, not one of his numerous patients has experienced the slightest ill effects from it; the sensation is highly pleasurable. Residence, 120 Chambers Street, West of Broadway."

It has been reported that one of Horace Wells' patients nearly died while under an anesthetic. This statement by Wells that "not one of his numerous patients has experienced the slightest ill effects from it—," plus the fact that supporting evidence has never been found that any of Wells' patients nearly died, should disprove this report.

January 21, 1848, Friday—33 years old this date.

While mentally deranged, due to the effects of constant self experimentation with chloroform, Dr. Wells was arrested because of annoyances committed on Broadway. Police records apparently lost.(21)

January 22, Saturday—Permitted to go to his rooms on Chambers Street where he secured his razor, other necessities and unknown to his guard, a bottle of chloroform.

January 23, Sunday—Attended church services in the Tombs. Seemed to be in good spirits, but profoundly affected by the sermon. Wells was a sensitive, very religious individual. Feeling that he was guilty of what he thought to be a terrible crime he committed suicide.(19)

January 24, Monday—Body discovered by the guard. "Dr. Walters, the coroner, was called to hold an inquest, and the jury rendered a verdict, 'that the deceased came to his death by suicide, by inflicting a wound in the left thigh with a razor, while laboring under an aberration of mind.'"

January 25, 1848, Tuesday—The *Evening Post* carried the following story and letters:

"Melancholy Suicide.—Dr. Horace Wells, who was arrested last Friday, under circumstances which are fully explained in the following letter, and with apparent truthfulness, committed suicide on Sunday night last, in his cell at the Tombs. By his side were found, on his bed, an empty vial, labelled 'Chloroform', the contents of which he had doubtless taken, preparatory to taking life. A pen-knife and a razor were also on the bed; with the latter he had lacerated the flesh of the left thigh quite to the bone, severing the femoral artery . . . In one corner of his cell were found his watch and the following letters:

"New York, Jan. 23, 1848.

"*To the Editors of the Journal of Commerce:*

"Gentlemen:—I wish, through the medium of your journal, to make a plain statement respecting the unhappy circumstances in which I am at present placed. My real name is now before the public as a miscreant, guilty of a most despicable act, that of wantonly destroying the property of those girls of the town who nightly promenade Broadway. The facts, so far as I am concerned, are briefly these:—On Tuesday evening last a young man with whom I had recently formed an acquaintance, went with me to my office in Chambers St., and while there, he said a woman of bad character had spoiled a garment for him while walking in the street, by throwing something like vitriol upon him; that he knew who it was, and would pay her back in the same coin. As I had some sulphuric acid in my office, which I was using in some chemical experiments, he requested the liberty of taking some of it, for this purpose. He accordingly cut a groove in the cork of a phial, so that a small quantity only might escape when it was suddenly thrust forward. He then said that he might get it upon his own clothes. I told him that I had an old cloak, which could not be much injured by the acid, as it was good for nothing.—By his request I walked into the street with him, he wearing my old cloak, and I having on my ordinary over-coat. We proceeded up Broadway, and when about opposite the theater, he said that he saw the girl he was in pursuit of, and he soon gave her shawl a sprinkling: we then turned down Broadway, when my friend proposed to sprinkle some of the other girls, I immediately objected, and told him that what he had already done was not in accordance with my own feelings, although it was done in revenge; and when we arrived at Chambers St., I took my phial and cloak; at the same time two of his friends came up and I left him, supposing that I had dissuaded him from doing the mischief he proposed, which is as foreign to my nature as light is opposed to darkness. I then regretted exceedingly that I had countenanced in any manner the first act. On getting home I found that my cloak had apparently received the prin-

ciple part of the acid which had escaped from the phial as the wind was blowing towards us when the act was done. On meeting with my acquaintance the next day, he said that himself and his two friends, whom I met the previous evening, had resolved to drive all the bad girls out of Broadway by sprinkling them with acid. I in vain reasoned with him against committing so much injury when he had not been harmed. This was the last interview which I have had with him to the present time.

"I wish now to state as well as I am able what influenced me to do this act on Friday evening, which I confess was done with my own hands; and this was the only one of which I am guilty and which resulted in my arrest. I had during the week been in the constant practice of inhaling chloroform for the exhilarating effect produced by it; and on Friday evening last I lost all consciousness before I removed the inhalor from my mouth. How long it remained there I do not know; but on coming out of the stupor I was exhilarated beyond measure, exceeding anything which I had ever before experienced, and seeing the phial of acid (which had been used a few evenings previous as above described) standing on the mantel, in my delirium I seized it and rushed into the street and threw it at two females. I may have thrust it at others, but I have no recollection further than this. The effect of this inhalation continued very much longer than ever before, and did not entirely pass off until sometime after my arrest. I do not make this statement expecting to free myself from all blame in this matter; yet I have been induced to make a minute statement of facts, that the public may better judge of this misdemeanor so far as I am concerned. I state, unhesitatingly, that I would no sooner, deliberately, in cold blood, go into the street and commit the gross acts of wantonness which have been committed for the last few evenings, than I would cut my right hand from my body. No, I am not prone to do mischief, as all can testify who have ever known me. But now I am placed in circumstances where I am obliged to bear the reproaches of the world for the most contemptible acts in which I have not participated. Because I have done this one act in a moment of delirium, I must bear the brunt of the whole. Some of the papers disbelieved my statement about others being concerned in this business; but I am informed to day that while I was in close confinement last evening, the same acts were being committed in Broadway; several were sprinkled with acid. However, my character which I have ever prized above everything else is gone—irrevocably gone—and I am now in the most miserable condition in which it is possible for man to be placed. One of those abandoned females who were examined yesterday, stated that I had often addressed her in Broadway. Now I do most solemnly assert that the statement of the girl is utterly

false; I never have, on any occasion, had anything to say to these miserable creatures. If myself alone was the only one to suffer by all the false statements, which may be or have been made respecting me, it would be nothing compared to the injury to my dear-dear wife and child. Oh! may God protect them! I cannot proceed, my hand is too unsteady, and my whole frame is convulsed in agony. My brain is on fire.

"Sunday evening, 7 o'clock.

"I again take up my pen to finish what I have to say. Great God! has it come to this? Is it not all a dream? Before 12 o'clock this night I am to pay the debt of nature. Yes, if I was to go free tomorrow, I could not live and be called a villain. God knows I am not one. O, my dear mother, brother, and sister, what can I say to you? My anguish will only allow me to bid you farewell. I die to-night, believing that God, who knoweth all hearts, will forgive the dreadful act. I shall spend my remaining time in prayer.

"Oh! what misery I shall bring upon all my near relatives, and what still more distresses me is the fact that my name is familiar to the whole scientific world, as being connected with an important discovery; and now, while I am scarcely able to hold my pen, I must bid all farewell! May God forgive me! Oh! my dear wife and child, whom I leave destitute of the means of support—I would still live and work for you, but I cannot—for were I to live on, I should become a maniac. I feel that I am but little better than one already. The instrument of my destruction was obtained when the officer who had me in charge kindly permitted me to go to my room yesterday.

Horace Wells."

"To The Editors

"My last request to Editors is, that they will, while commenting on this unhappy affair, think of my poor wife and child—also my mother, brother and sister, all of whom are numbered among the most respectable members of society.

H. Wells."

"To My Dear Wife

"I feel that I am fast becoming a deranged man, or I would desist from this act. I can not live and keep my reason, and on this account God will forgive the deed. I can say no more.

Farewell

H."

"To Mr. Dwyer

"Dear Sir: When you receive this I shall be no more. I wish you would take my watch and present it to my dear wife, together with the trifle I have

already given you. Please to see to my burial: let me be interred here in the most secret manner possible. I wish you or Mr. Barber would go immediately to Hartford, and reveal this misfortune to my wife in the most inobjectionable manner possible, and attend to the business which we spoke of this morning, when you little thought of this occurrence.

Yours,
H. Wells."

"To Messrs. Dwyer and Barber, Weston Hotel.

"N. B. Please tell Mr. James to write to Mr. F. W. Stowon, No. 19 Rue du Faubourg Possonier, Paris and tell him of my death."

"As some papers connect the name of Dr. Wells with the 'discovery of ether or chloroform', it may be proper to state that to the deceased is due the original discovery of 'ether' now in use by dentists and others; but that Dr. Morton, of Boston, first successfully applied it, after its use had been suggested by Dr. Wells. Chloroform is an entirely different thing, discovered, we believe, by Dr. Simpson, of Edinburgh."

January—. Death mask made?¹⁵

January 26, 1848, Wednesday: The *Daily Hartford Courant* had the following:

"EDITORIAL

"THE LATE HORACE WELLS

"The death of this gentleman has caused a profound and melancholy sensation in this community. He was an upright and estimable man, and had the esteem of all who knew him. Of undoubted piety, simplicity and generosity of character, enthusiastic in the pursuits of science, and having just been acknowledged as the discoverer of etherization in surgical operations, he was regarded with the highest respect and regard by all our citizens, and there was no one who seemed less likely to meet the sad fate that has befallen him.

"In the letters which were found in his cell he speaks of himself as having formed a habit of taking ether for its exhilarating effects. There is no reason to suppose that he did this deliberately. The probability is that his mind was somewhat unsettled by the frequency with which he inhaled it in trying experiments in order to satisfy himself on the feasibility and propriety

¹⁵The date on which the mask was made or by whom is unknown. It hangs at present in the Boston Medical Library. Mr. James F. Ballard, Director, advises me that he has "been unable to find any reference to the Library's acquisition of Horace Wells' Death Mask. It has been in the Library for a great many years, as I remember seeing it even in the old building at 19 Boylston Place. I suppose that we have had it for sometime previous to 1892."

of employing it in surgical operations. Being of an excitable temper, the effects of this course, added to the agitation which he felt in consequence of the attempt to gain the credit of his important discovery for rivals, and the intensity with which he watched the proceedings in Paris on this subject, till he was formally acknowledged as the real discoverer, further unbalanced his mind so that he was peculiarly in danger of mischief. When in this disturbed state it is not to be wondered at that he betook himself to the inhaling of chloroform, that in the madness occasioned by it he should have engaged in the acts for which he was arraigned, or that under the pressure of his misery he should have put an end to his own life. He committed the fatal act by cutting open his thigh, completely severing the femoral artery, having first inhaled chloroform to deaden the pain. Before doing this he wrote the letters which we copy below, expressive of his desperate intentions and the mental suffering which led to the rash consummation.

"By a melancholy coincidence, Dr. J. B. Terry, his late partner, was bereaved of a son under most afflicting circumstances on Saturday. We are informed that Mrs. Wells wrote to her husband to avoid writing to Dr. Terry on business, as he was not in a state of mind to receive such correspondence. Little did any think how great an affliction awaited her at that very time!"

The letters referred to in this editorial are printed under date line of New York, Jan. 25th, 1848.

January 27, 1848. In the *Hartford Courant*, Vol. 12, No. 23, Whole No. 3093, is the following notice under deaths, page 3.

"The Funeral of Dr. Horace Wells will take place at his late residence, No. 117 Main St., this (Thursday) P. M. at half past 2 o'clock."

He was buried in the Old North Burying Ground.¹⁶(21)

January 27, 1848. In the *Hartford Daily Courant*, Vol. 12, No. 23, Whole No. 3093, on page 2, is an editorial copied from the *New Haven Journal*.

"THE SUICIDE OF DR. WELLS.

"The statement of this unhappy event as given in another column, is by no means in our judgment calculated to give the public mind the exact morale of this affair. It is the belief of medical men here who know all the facts, that he was utterly irresponsible in a moral view for all he did, and that his whole conduct was the dictate of insanity. Indeed, those who

¹⁶On May 18, 1908, Dr. and Mrs. Wells' bodies were removed and brought to Cedar Hill for burial.

knew him, know that his whole conduct was utterly irreconcilable with his firm and established character.

"He spent some days in this city last summer—called at our office—and we were struck with the intellectual merit as well as modesty of the man. There was something peculiar in him. He remarked to us the extreme pain he suffered from the course of some medical gentlemen in reference to his discovery, and we formed the opinion that he was subject to great mental depression, amounting almost to disease—a fact his friends say was true of him.

"He was however, a high minded gentleman, utterly incapable, while in his right mind, of the low and boyish mischief which he committed in New York, and there is no doubt whatever that that which some of our public presses refer to as a fault, was only a misfortune, and all the more dreadful because of its awful effects on himself. He was a man to whom the world owes public thanks for taking the lead in the most wonderful discovery in human history, and we are pained to see any of the public press, almost without examination, stigmatize as a 'monster', the man who had laid humanity under such an obligation. We witnessed but the other day a surgical operation in this city under the influence of ether, or that which grew out of Dr. Wells' discovery. We felt then how much the world owed him. This and such facts known to all, should make us slower in condemnation.

"Tis well to speak the best we can of human kind."

March 15, 1848. F. A. Brown and C. L. Covell, appraisers, under oath, submitted to the Probate Court this:

"Inventory & appraisal of estate of
Horace Wells
Late of Hartford Deceased
Exhibited & Accepted
March 20th, 1848.
Recorded Book 49 page 229 . . .

Office Furniture

1 Sofa (castors broken off)	13.00
1 Rocking Chair (red)	1.25
1 Center Table	5.00
1 Dentist Chair	3.00
1 Carpet (say 16 yds) @ .50	8.00
1 Looking Glass	2.50

1 Stove & Pipe		9.00	
Lot of Shells		15.00	
1 Show Case containing do		5.00	
<i>Tools, etc.</i>			
Murite of Ammonia, say 6 lbs. 15c		.90	
2 Pairs Forceps (new) 1.50		3.00	
6 Pairs Forceps .75		4.50	
1 Pair Forceps		.50	
1 Pair Forceps		.25	
3 Pairs Forceps .50		1.50	
24 Files 1.00 per doz.		2.00	
Lot Gold		1.00	
2 Glasses		.25	
35 Excavators & Burrs (Square Finish) 1.50 doz.		4.25	
24 Excavators & Burrs (Round finish) 1.00 doz.		2.00	
23 Excavators & Burrs (Ivory handle) 1.00 doz.		1.92	
21 Pluggers, etc. (Ebony & ivory handle) 4.50 doz.		7.87	
1 Spring Saw		.50	
1 Drawing Plate		1.00	
3 Files		.50	
978 Teeth (plate & pivot) 6c		58.68	
2 Cases for tools 2.—		4.00	94.62
47 Bells, etc.			10.00"

The fact that there does not exist any of the personal effects, instruments or equipment of Horace Wells was something I couldn't understand. However, through the kindness of Miss A. Louise Blair of Hartford, I have received copies of the papers in the Horace Wells' file at the Probate Court, which show that his estate was insolvent and the office furniture, tools and household furniture were sold at auction.

REFERENCES¹⁷

(1) Ellsworth, P. W.: Biographical Sketch on "The Life of Horace Wells, M.D.," published in "An Inquiry into the Origin of Modern Anesthesia," by Hon. Truman Smith, Brown and Gross, Hartford, 1867.

(2) McManus, James: "Notes on the History of Anesthesia"; the Wells' Memorial Celebration at Hartford, 1894; Early Record of Dentists in Connecticut. Clark and Smith, Hartford, 1896.

(3) Personal Communications from Arthur Wells Cole in 1937 and 1938, nephew of Horace Wells and also from Mrs. Mary W. Cole in 1943 and 1944.

(4) Jacobs, Walter H.: Horace Wells, *Dental Cosmos*, Vol. 77, p. 854-864, September, 1935.

(5) Records of the First Church of Christ in Hartford. Through the courtesy of Miss Alice Hildebrand, Secretary.

(6) Copy of the original letter in the Horace Wells' Collection, Dental-Medical Library and Museum, School of Dentistry, University of Pittsburgh.

(7) Wells, Horace: "An Essay on Teeth: Comprising a Brief Description of their Formation, Disease and Proper Treatment." Case, Tiffany & Co., Hartford, 1838.

(8) Hartford Directory, 1838. Through the courtesy of Mr. Albert C. Bates, Librarian of the Connecticut Historical Society.

(9) Data on grave markers.

(10) Index of Inventors—1790 to 1847.

(11) Smith, Hon. Truman: An Examination of the Question of Anesthesia Arising on the Memorial of Charles Thomas Wells. Gray, New York, 1859.

(12) Horace Wells' Day Book (Original copy in Walter R. Steiner Medical Library of the Hartford Medical Society, Hartford, Conn.).

(13) Archer, W. H.: Historical Notes on Horace Wells, *Dental Rays*, Vol. 14, No. 3, March, 1939.

(14) Wells, Horace: A History of the Discovery of the Application of Nitrous Oxide Gas, Ether, and other Vapors, to Surgical Operations. J. Gaylord Wells, Hartford, 1847.

(15) Rice, Nathan P.: Trials of a Public Benefactor as Illustrated in the Discovery of Etherization. Pudney and Russell, New York, 1858.

(16) Morton, W. T. G.: Anesthesia. Statements Supported by Evidence of Wm. T. G. Morton, M.D., on his Claim to the Discovery of the Anesthetic Properties of Ether submitted to the Honorable the Select Committee appointed by the Senate of the United States, 32nd Congress, 2d Session, Jan. 21, 1853. Underwood, Washington, 1853.

(17) Colton, G. Q.: Anesthesia, Who Made and Developed This Great Discovery. A. G. Sherwood and Company, New York, 1886.

(18) Discovery of Anesthesia by Horace Wells, Patterson & White Co., Philadelphia, 1900.

(19) *New York Dental Recorder*, page 10, May 1, 1846.

¹⁷The Library of the School of Dentistry, University of Pittsburgh, which is one of the three outstanding libraries of its kind in the world, has a collection of historical documents and books dealing with the discovery of anesthesia and the controversy which followed, that is second to none.

(20) Wells, Horace: *The Discovery of Ethereal Inhalation*. *Boston Medical and Surgical Journal*, May 12, 1847, Vol. 36, pages 298-301.

(21) Personal communication from Alexander C. Anderson, Chief Inspector of the Police Dept., City of New York.

(22) *Bellows Falls Times*, November 25, 1915 (Historical Sketch #115 by Lyman S. Hayes).

ACKNOWLEDGMENT

The fact that this article contains much material which heretofore has never been published, except in the original sources long since forgotten, is due to the invaluable assistance of:

Miss Alice McCann, Librarian of the School of Dentistry, University of Pittsburgh.

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Mr. Donald A. Wing and Emma H. E. Stephenson, Assistant Reference Librarians, Yale University Library, New Haven, Connecticut.

Mr. Dennis A. Dooley, State Librarian, The Commonwealth of Massachusetts State Library, State House, Boston.

Col. Harold W. Jones, Librarian, Army Medical Library, Washington, D. C.

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Dr. R. Leslie Jones, White River Junction, Vermont.

Mrs. Mary Pease Trumbull, Hartford, Vermont.

Miss Mary W. Fullam, Westminster, Vermont.

Edwin Stanley Wells, Newington, Connecticut.

Florence Paull Berger, Hartford, Connecticut.

Sexton, Immanuel Church, Bellows Falls, Vermont.

Miss Ruth E. Burt, Westmoreland, N. H.

Mrs. George E. Sewall, Westmoreland Depot, N. H.

The help of these individuals is gratefully acknowledged.

Furthermore the author wishes to acknowledge the source of the following photographs:

By courtesy of Mrs. Arthur W. Cole:

Charles Thomas Wells

The Wells Home in Bellows Falls,
Vermont

The Shaw Home in Westmoreland,
New Hampshire

Doctor Charles Wells

Mrs. Mary Wells Cole

Mrs. Betsey Wells Shaw

Doctor Horace Wells

By courtesy of Wadsworth Atheneum:

Flagg Portrait of Horace Wells

By courtesy of Dr. Frederick R. Murlless:

Silver Memorial Wreath

Bust of Doctor Horace Wells

McManus Portrait of Horace Wells

Death Mask of Horace Wells

Doctor John M. Riggs

Carved Pew End to Horace Wells

By courtesy of Doctor Charles J. Wells:

Horace Wells Cottage, Hartford,

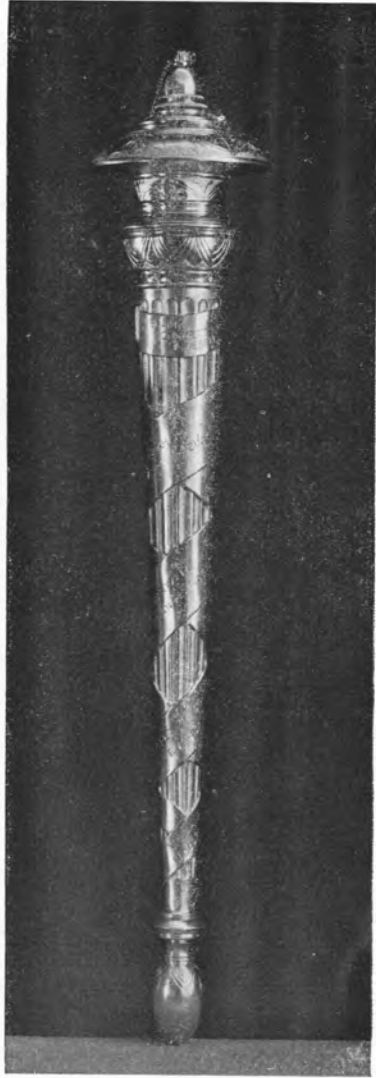
Connecticut

Monument to Horace Wells in the

Place Des Etats-Unis, Paris

- | | |
|---|--|
| By courtesy of the late Doctor Walter R. Steiner: | By courtesy of Burroughs Welcome Company: |
| Pages from Horace Wells' Day Book | "The First Dental Operation under Nitrous Oxide . . ." |
| By courtesy of Doctor R. Leslie Jones: | By courtesy of S. S. White Company: |
| Birthplace of Horace Wells in Hartford, Windsor County, Vermont | Memorial Window to Horace Wells |
| By courtesy of United States National Museum: | Memorial Plaque to Horace Wells |
| Daguerreotype of Doctor William T. G. Morton | By courtesy of Doctor Eugene M. Clifford: |
| | Horace Wells Portrait Statue |

The Miniature Paintings of Doctor and Mrs. Horace Wells and the Engraving of Horace Wells are the originals and are housed in the Horace Wells Collection of the Dental Library and Museum, School of Dentistry, University of Pittsburgh.



Mace of the American College of Dentists on which is engraved the names of seven "immortals in dentistry," one of whom is Dr. Horace Wells.

APPENDIX

HORACE WELLS' BIRTHPLACE

Here Horace Wells was born on January 21, 1815. This house was built in 1806 and has been occupied ever since. Throughout the years the house has been kept in good repair and modernized. On December 11, 1944, the Vermont Dental Society will unveil a bronze tablet mounted on this house, thus marking for all time the birthplace of one of mankind's greatest benefactors.

The present owner and occupant of this house writes:

"(1) The first owner of this lot was William Arnold and it is supposed that he built the house in 1805, or rather local history says 'he bought the lot', built the house in 1806.

"(2) It is a story and a half house, of wood construction.

"(3) Five rooms on the first floor, two small bedrooms, one opened from the kitchen. There was a large brick oven, also a large buttry, as they were called in those days. On the north side there was a little water room, a door from kitchen leading into that, thru which you passed to get to the 'out house' and the wash was done here. (This was standing when we bought, only a little of the flooring remained, if it ever had any, and Oh, such a cold place.)

"There were two small bedrooms on the second floor, low, very close to the roof. (We added the dormers on both sides.)

"(4) The subsequent owners of the house were Ziba Wood, Horace Wells, Joseph Emerson, Ira Wood, Ora Wood and Luther Pease.

"Our local history states that Mr. George Bugbee was married in 1848, and no doubt brought his bride to this home, where he lived 60 years (had two wives, two sons) and added the front of the house, with a very lovely winding stairway. Later he added the front porch, and on the south, across the kitchen, was a narrow piazza, what we term, as a 'cat walk.' I am sure that Mr. Bugbee also added the large woodshed, you see at the back, as he owned a large farm, and used wood as fuel. Nothing has been changed in the old section of house, as far as the rooms are concerned.

"Now we will go back, and take up the questions that are not connected with Horace Wells.

"I imagine he was born in the bedroom off the kitchen, as that would be where the most heat and the hot water would be. My late cousin Mr. Horace Pease was born in that room on Dec. 11, 1844, when his father Luther Pease was in Company with Ora Wood in a Tannery located on these grounds, vats and long lines occupied the field back of the house (east) and covered quite a bit or territory. In my cellar is the large gray marble slab that the hides were cleaned on, is a lovely thing, six feet and 3 in. long, by



HORACE WELLS' BIRTHPLACE, HARTFORD, WINDSOR COUNTY, VERMONT.

4 feet 3 in. wide and nearly 2 in. thick. Now this tannery was sold before 1848, and our local history gives no mention of sale.

"My late husband bought this house in 1915, and it is a lovely sunshiny home. We added the Dormers on both sides of the house, a large porch on the ell, and the usual modern necessities for a comfortable home. When Mr. Arnold built, he had a grand eye for movement of the sun, as it shines in the northeast slant, into all the rooms from March to late fall, as well as all the rooms southwest. I have lived here 36 years, is much too large for a person alone, but I love the location.

"I am sorry to delay, but looking up all the data I could, has taken some time.

"Thank you so much for the history of Horace Wells, that came by post yesterday. I appreciate your thot of me. Very truly yours,

MARY PEASE TRUMBULL.

Hartford, Vermont, June 23, 1944."

THE WESTMINSTER, VT., AND WESTMORELAND, N. H., HOMES OF HORACE WELLS

The top picture is the Wells family farm house, where Horace spent his early childhood. It is still standing and is located on U. S. Route #5, the "Kings Highway" about two miles north of Westminster, Vermont, and about the same distance south of Bellows Falls. It sets up from the road on a slight elevation. Mr. Wells sold this farm of 320 acres to Ellery Allbe in 1820. The Wells family then moved into Bellows Falls. The house is a spacious two story structure and in a good state of preservation. It has the original large chimneys with fireplaces, and covered with large pine boards.

In the days of Horace Wells Senior and Mr. Allbe the house was used as a hotel for "entertainment" of the stages and freight teams which passed up and down the valley.

The bottom picture is the home of Horace Wells' stepfather, Abiather Shaw, Jr., who is seen sitting to the left of the doorway and his second wife, Betsey Heath Wells Shaw, is sitting to the right. This house is still standing in Westmoreland, N. H. Mrs. George E. Sewall, the present owner, writes:

"I have people come from all over the country to see my lovely old house. It is indeed an art treasure. Abiather Shaw said he was going to build the finest house in Cheshire county and he did. There isn't anything this side of Portsmouth comparable to it. The wood carving in the parlor took 100 days and is the work of an artisan. There is also wood carving around the hall, Christian doors, H. & L. hinges, wooden pegs, shutters, Franklin fireplace and seven fireplaces in all . . ."



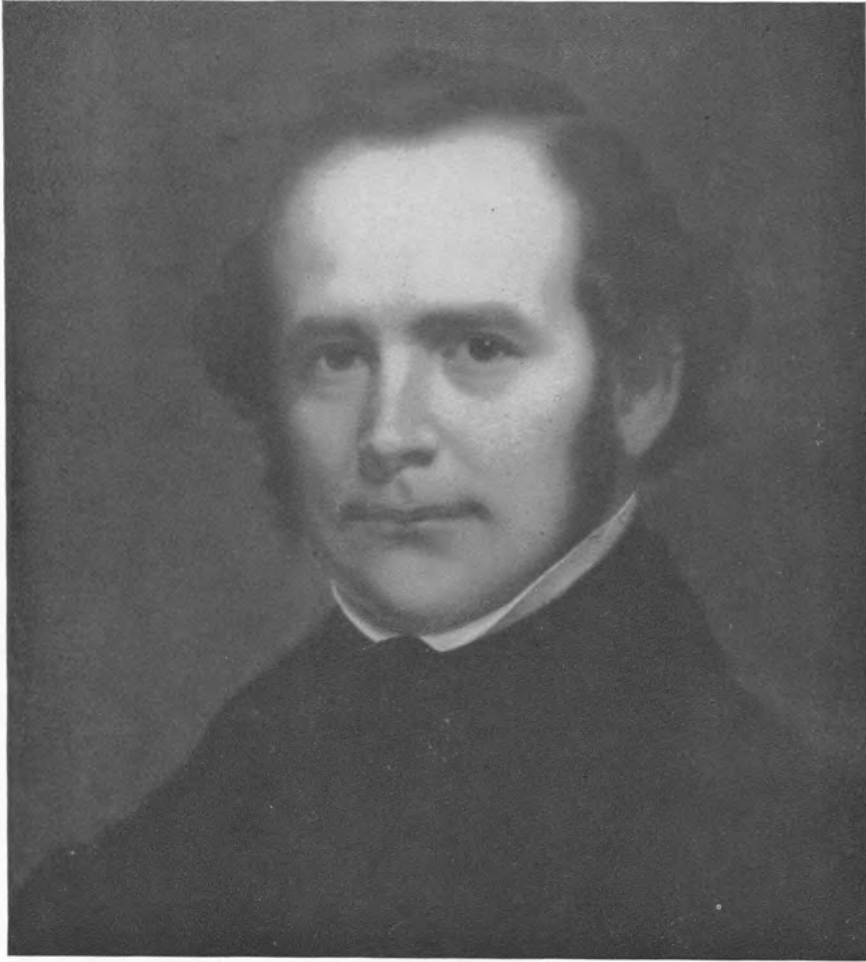
Top—Horace Wells' home at Westminster, Vt. Bottom—The home of Horace Wells' stepfather, Abiather Shaw, Jr., in Westmoreland, N. H. Both these houses are still standing and occupied.



BETSEY HEATH WELLS SHAW

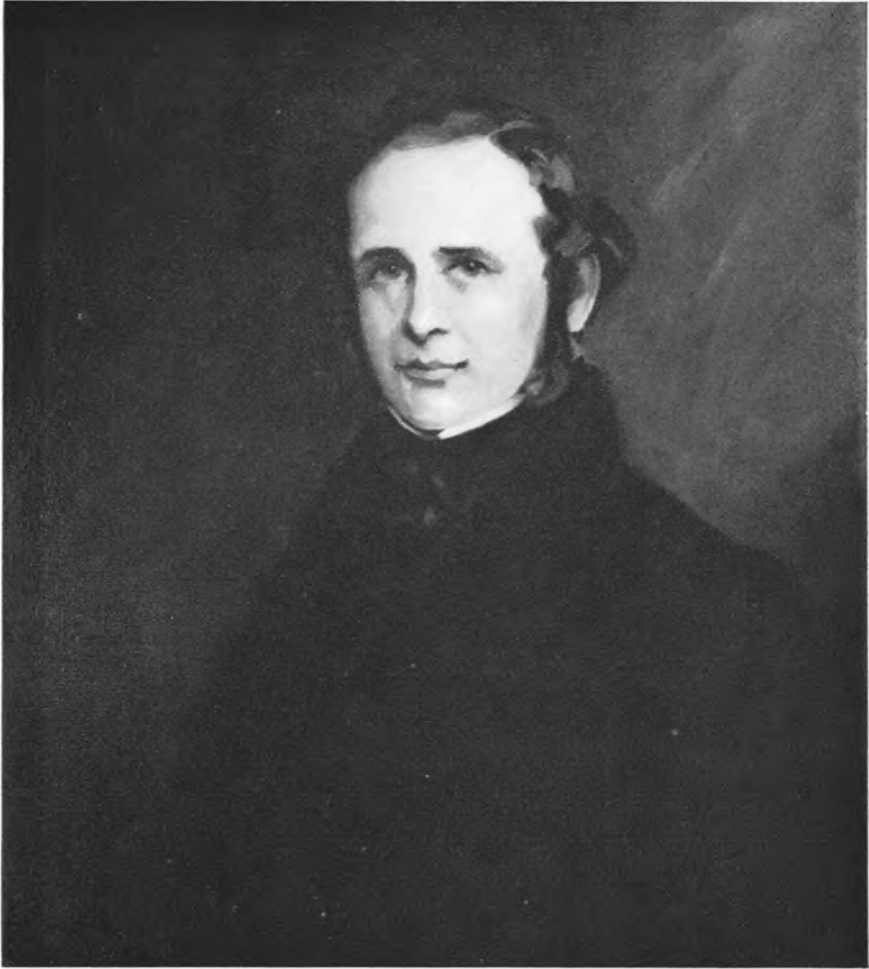
Horace Wells' mother, Betsey Heath, was a descendant of Joshua Wells, who was in Windsor, Connecticut, as early as 1645. She was born on April 20th, 1788, and died on February 21st, 1879, at Westmoreland, New Hampshire, and is buried there in the North Cemetery. On June 21st, 1810, she married Horace Wells Senior, who died on April 5, 1829. On November 2, 1830, she married again, this time to Mr. Abiather Shaw, Jr., a widower with four daughters and three sons.

This portrait has been handed down from Betsey Heath Wells to her daughter, Mary Wells Cole, who gave it to her son, Arthur Wells Cole, and it is now in the possession of his widow, Mrs. Mary W. Cole. (Artist unknown.)



HORACE WELLS

This portrait of Horace Wells, hung in the home of Dr. Wells' only son, Charles T. Wells, until his death in 1909. The painting was left to Arthur Wells Cole, Dr. Wells' nephew, and is now in the possession of his widow, Mrs. Mary W. Cole. (Artist unknown.)



DR. HORACE WELLS

The ninety-sixth anniversary of the discovery of anesthesia was commemorated on December 10, 1940, by the presentation of the above portrait of Horace Wells to H. E. Friesell, Dean of the School of Dentistry, University of Pittsburgh, by the Dental Alumni Association. This portrait, by Miss Verona Kiralfy, now hangs in the Dental-Medical Library, which also houses the largest collection of original Horace Wells letters in existence and an outstanding collection of literature on the subject of anesthesia and an extensive array of historical anesthetic machines and syringes.



NOTE CONCERNING THE STEEL ENGRAVING OF HORACE WELLS.

(Engraved by H. B. Hall from a Photograph)

"Dr. James McManus, venerable dentist of Hartford, Connecticut, has kindly sent your editor, Dr. B. J. Cigrand, many noteworthy illustrations and tokens relating to the discovery of anesthesia, and the *American Dental Journal* has cheerfully gone to the expense of having a most beautiful steel engraving made of Dr. Horace Wells, and engraved the latter's signature under a most classic face."—*American Dental Journal*, December 15, 1912, page 268.



This school house is located on the Abiather Shaw property and has been partially restored by the present owner of the property, Mrs. George Sewall. Undoubtedly Horace Wells attended school here and probably taught writing in this building. The teacher's desk and many of the students' desks are still in the school room. It is hoped that this building can be completely restored.

H. WELLS

This brass stencil, measuring 8" x 2½", probably used by Dr. Wells in marking the wooden cases in which he shipped his shower baths and oil painting, was found in the wild flower garden at the home of Abiather Shaw, Horace Wells's stepfather, by its present owner, Mrs. George Sewall, only a few years ago. It is the only possession of Horace Wells', other than letters, that is known to be in existence today.



THESE ACTUAL SIZE REPRODUCTIONS OF MINIATURE OIL PORTRAITS ON IVORY OF DR. AND MRS. HORACE WELLS BY AN UNKNOWN ARTIST, WERE PROBABLY PAINTED IN 1839.

These priceless portraits, thought to be the only originals in existence, are part of the Horace Wells Collection in the Dental Library and Museum of the School of Dentistry, University of Pittsburgh.



CHARLES WELLS, M.D.

MARY WELLS COLE

CHARLES WELLS, M.D.

Charles Wells, only brother of Horace Wells, was born in Westminster, Vermont, on June 22nd, 1817, and died December 28th, 1884, in Manchester, New Hampshire.

Dr. Charles Wells was educated in the public schools of Bellows Falls, Vt., where the family resided and where his father died in 1829. After academic courses at Walpole, N. H., and Amherst, Mass., he began the study of medicine in 1837 with Dr. Hosiath Graves of Nashua, N. H., and was graduated from Jefferson Medical College, Philadelphia, Pa., in 1840, at the age of twenty-one. He began his professional career in Chili, New York, but the field of practice proving unsatisfactory, he removed to Manchester in 1842, where he continued to reside until his death.

Never an aggressive practitioner, but always content with the share of patronage that fell to his lot, he enjoyed in a high degree the confidence and respect of his professional brethren. Such, however, was his success, and such his rare financial skill and judgment, that while still in the prime of manhood he was relieved of the burden of further professional labor, and was enabled to withdraw from active practice, to devote the remaining years of his life to the management of his large estate and to those domestic and social enjoyments which were ever the source of his greatest happiness.

Never seeking political honors, although they were frequently offered to him, his only public service was as a member of the Common Council in 1847-1848, and as an alderman in 1848-1849. He assisted in making the first City Report, and the plan suggested and matured by him has been in use ever since. He was for many years Vestryman and Treasurer of Grace Episcopal Church.

Of fine physique and of prepossessing appearance, he was gentle, courtly, dignified, and affable in his demeanor. December 21, 1847, he was married to Miss Mary M. Smith. Their union, though not blessed with children, proved most felicitous.

(The information was obtained through the courtesy of Fed. W. Lamb, Secretary and Director of the Manchester Historic Association.)

MARY WELLS COLE

"Mary Wells was born September 1st, 1819 in Bellows Falls, Vermont. She attended a select (Private) school in Bellows Falls until she went to 'The Ipswich Academy for Young Ladies' at Ipswich, Massachusetts. Miss Mary Lyon was the Head Mistress.

"Mary Wells majored in French and Music and after she graduated she returned to the Academy and taught French and Music for several years.

"She married Captain John Cole of Westmoreland, New Hampshire, in 1845. She had three children: Fredrick, born 1848, died 1851; Arthur Wells Cole, born March 2nd, 1856, died May 17th, 1939; Mary Alice, born 1858, died 1861.

"Mary Wells Cole was a deeply religious, Christian woman, a devoted daughter, wife, mother and sister. She gave much time to church, missionary and Temperance work, also in the Sunday School. She was always interested in the young people.

"She was intensely interested in Horace's discovery of anesthesia and took a very active part in establishing his right in being the first to discover it. She wrote many articles for the papers and magazines upholding his claims. She died December 25th, 1900, in Chicago, Illinois, and is buried in Chicago."

(Letter from Mrs. Mary W. Cole.)



CHARLES T. WELLS, ONLY DESCENDANT AND SON OF
DR. AND MRS. HORACE WELLS.

CHARLES THOMAS WELLS .

The only child of Dr. and Mrs. Horace Wells was born in Hartford, Conn., on August 26th, 1839, and died in the same city on June 8th, 1909.

Fatherless at the age of nine this young man early assumed the chair as the head of the house and by diligence and hard work eventually provided a fine home at #17 Spring St., in Hartford, and some of the comforts of life for his mother.

Charles T. Wells was about five feet six inches tall but well set up and walked with a military bearing which earned him the respectful title of "Major." This effect was strengthened by his moustache, long side whiskers and his serious mien.

He was one of the leading members of the Old First Church in Hartford and for many years was the Clerk of this church and was one of its Deacons at the time of his death.

He was a liberal contributor to the church and a generous, kindly man of sterling principles, yet modest and shunned publicity.

He built up a rather extensive library during his lifetime, which is now housed in the Connecticut State Library.

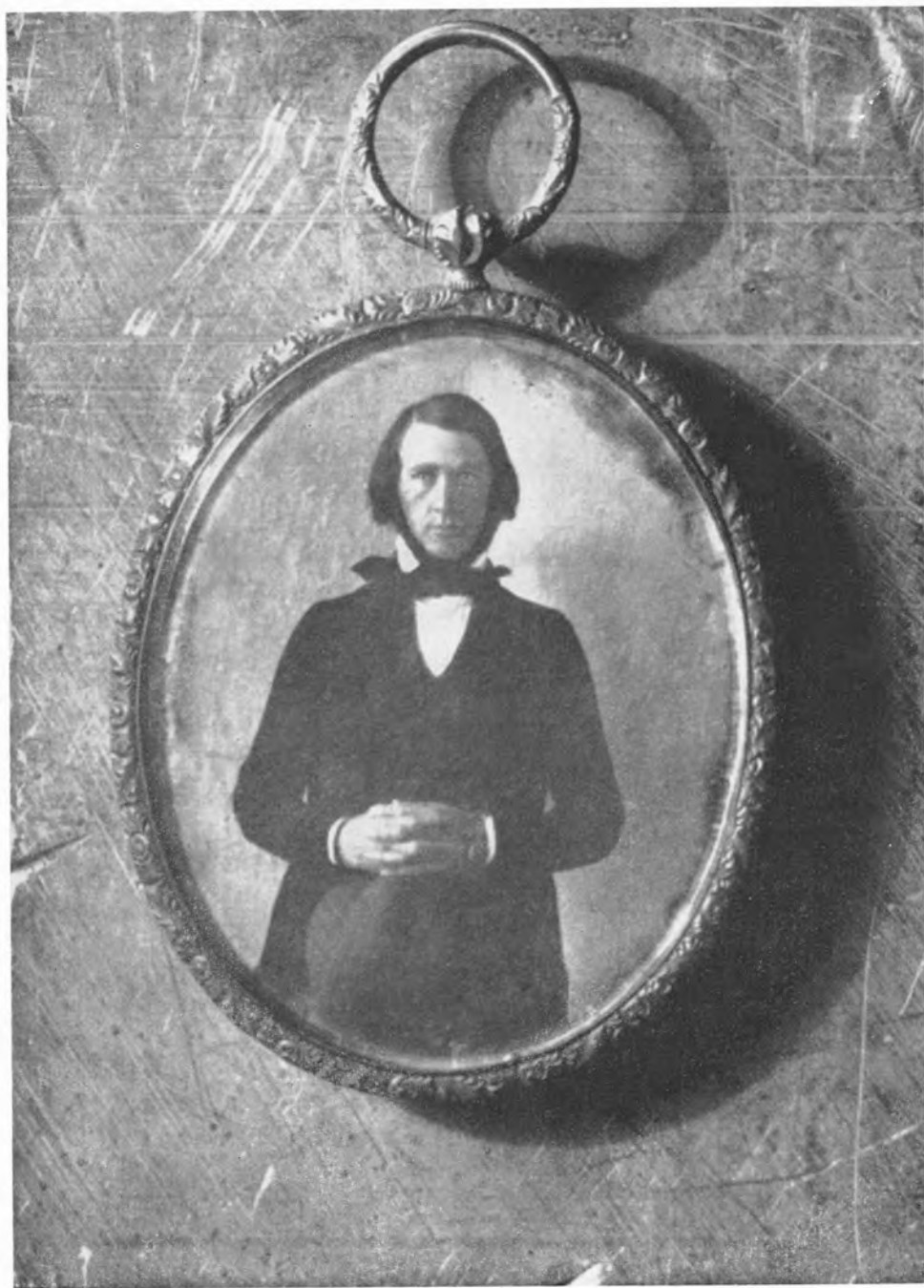
He was with the Aetna Insurance Company in Hartford for many years and was thrifty and when he died left quite a good deal of money. He was interested in collecting rare books, pictures, china and antiques. He never married and lived alone after his mother's death.

(For Charles Thomas Wells' description of his father given in Philadelphia, Pa., at the fiftieth anniversary of the discovery of anesthesia by Horace Wells, see page 178.)



"A NEW ERA IN TOOTH PULLING."

The first dental operation performed on Horace Wells under the influence of Nitrous Oxid Gas, December 11, 1844. The above remark is attributed to Dr. Wells on recovering consciousness following the extraction of one of his upper wisdom teeth by Dr. John Riggs. The spectators are Gardner Q. Colton, Sam Cooley and the third is unknown.



PHOTOGRAPH OF A DAGUERREOTYPE OF DR. WILLIAM T. G. MORTON.

DR. WILLIAM THOMAS GREEN MORTON
DENTIST

Pupil and short time partner of Dr. Horace Wells. Dr. Morton on October 16, 1846, made the first public demonstration of ether as an anesthetic agent to relieve the pain of surgical operations in the Massachusetts General Hospital in Boston.

Dr. Morton refused to concede that Dr. Wells was the discoverer of anesthesia because he claimed that nitrous oxide would not produce anesthesia!

Specifically he wrote:

“National Hotel, Washington, January 18, 1853.

“Dear Sir:

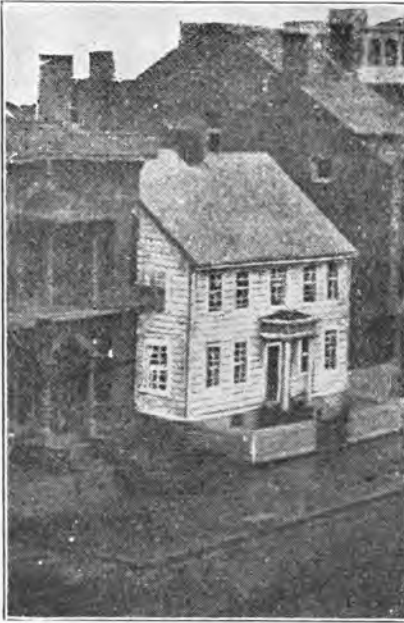
“The subject of the discovery of anesthesia being now before a committee of which you are chairman, I beg leave to submit to you, and through you to a committee, a proposition.

“One of those who contest my right to the discovery, does so on the ground that anesthesia had been discovered by Dr. Wells prior to my alleged discovery; and that the anesthetic agent used in the discovery by Dr. Wells was nitrous oxide gas. Now, if anesthesia, for surgical purposes, was ever discovered through nitrous oxide gas as the agent, that agent, for the same purposes, will still manifest its efficiency. I deny that such a discovery, by means of said agent, ever was made, or that said agent possesses available anesthetic properties alone for surgical operations. At the same time, I assert and claim that anesthesia was first discovered by me, through the agency of sulphuric ether. Therefore, to prove that nitrous oxide never was discovered to be an available anesthetic agent in surgical operations, and that it is not such now—and to prove also that sulphuric ether was discovered to be an available anesthetic agent for such purposes, and is so now—I propose that an actual demonstration shall be made before the committee of the two agents, in such surgical operation or operations as are considered fair tests by scientific men, at such time as the committee may direct, and patients obtained.”(15)

(AUTHOR'S NOTE: In brief Morton said that if nitrous oxide was an anesthetic agent, then Horace Wells was the discoverer. Today Wells is recognized by clear thinking, fair minded individuals as the discoverer of modern inhalation anesthesia.)

“The claim of Dr. Wells, however, is not based either by himself, or by his friends after death, upon a discovery, made by him that ether would produce a complete anesthesia, but that some agent would. To use his own words: “This discovery does not consist in the use of any one specific gas or vapor, for anything which will cause a certain degree of nervous excitement, is all that is required to render the system insensible to pain; consequently, the only question to be settled is, which exhilarating agent is least likely to do harm?”

I have confined myself to the use of nitrous oxide gas, because I became fully satisfied from the first, that it is less injurious to the system than ether.' The same argument is used by Dr. Marcy, who says: 'The man who first discovered the fact that the inhalation of a gaseous substance would render the body insensible to pain, under surgical operations, should be entitled to all the credit or emolument which may accrue from the use of any substances of this nature. This is the principle—this is the fact—this is the discovery. The mere substitution of ether vapor, or any other article, for gas, no more entitles one to the claim of a discovery, than the substitution of coal for wood, in generating steam, would entitle one to be called the discoverer of the powers of steam.'"(15)



HARTFORD.

HORACE WELLS' COTTAGE ON LORDS HILL, will be unveiled December 11, 1944.)

(See Horace Wells' Letter to his Parents of September 21, 1838, also his ad of February 5, 1845, in the *Hartford Courant*. Naturally this photograph was made many years after Dr. Wells' death and the district had become built up. The house is now gone but a plaque marking the spot



DR. JOHN M. RIGGS,

Later of "Riggs Disease" fame, who performed the first surgical operation under nitrous oxide anesthesia on December 11, 1844. Dr. Horace Wells was the patient.

Extracts from the deposition of John M. Riggs, dentist, of Hartford, Connecticut: "On the evening of the 10th of said December, Dr. Wells came into my office after Dr. Colton's lecture and said that he and others had taken the above gas; and remarked that one of the persons had injured himself and stated, after recovering from the effects of the gas, that he did not know at the time that he had sustained such injury. Dr. Wells then said, 'He did not feel it; why cannot the gas be used in extracting teeth?'"



CHARLES T. JACKSON.

Physician, geologist, chemist. One of the claimants for the title, "Discoverer of Anesthesia."



SILHOUETTE OF HORACE WELLS
Which hangs in the Walter R. Steiner
Medical Library, Hartford, Conn.



GARDNER Q. COLTON

The chemist who gave the demonstration at which Horace Wells conceived the idea of inhalation anesthesia by nitrous oxide. Through Colton's efforts Nitrous Oxide anesthesia was reintroduced in the late sixties.



COPY OF PORTRAIT OF HORACE WELLS BY
JAMES MCMANUS.

This portrait hangs in the Hartford Dental Library.

COLTON'S DESCRIPTION OF THE CONVERSATION WITH
WELLS AT THE TIME OF HIS EXHIBITION
IN HARTFORD²

MR. PRESIDENT AND GENTLEMEN: I can say in the language of Anthony that I am no orator, as the President is, but as you all know me, a plain, blunt man, for I have neither wit, nor word, nor worth, nor action, nor utterance, nor the power of speech. I only speak right on, to tell you that which you yourselves do know.

Now the story is very simple. Just fifty years ago, on the night of the 10th of December, 1844, I gave an exhibition of the amusing effects of the gas, in this city, at Union Hall.

By the way, I went into the office of the *Hartford Courant* today and saw my advertisement occupying a half a column of the old files of 1844.

After giving a brief lecture on the properties of the gas and its effects I invited twelve or fifteen gentlemen to come on the stage. Among these gentlemen were Dr. Wells and Mr. Samuel Cooley, afterwards called Colonel Cooley. A number of the gentlemen inhaled the gas, Dr. Wells among them. When Mr. Cooley got under the influence he began to dance and dash around and ran against some wooden settees and thereby jammed his legs. Dr. Wells said to him, "You must have hurt yourself." "O, no," said he. Well, after a while he began to feel some pain, after the effects of the gas had worn off, and then his leg began to bleed. He says, "I did not know I was running against the bench. I did not feel a particle of pain until the effects of the gas passed off." When the audience was going out Dr. Wells came to me and said, "Why cannot a man have a tooth extracted and not feel it under the effects of the gas?" I said I did not know. "Well," said he, "I believe it can be done. Mr. Cooley did not know that he hurt himself until the effects of the gas passed off."

Said he, "I have a big molar that is decayed and I should be glad to have it pulled." The next day, on the 11th, I took a bag of the gas to his office, and I think Mr. Cooley was present, at any rate Dr. Wells sent out for a neighboring dentist, a Dr. Riggs, to come in and draw his tooth. Then the word anaesthesia had not entered his mind. I gave Dr. Wells some of the gas and Dr. Riggs took out his tooth. Wells clapped his hands and exclaimed, "It is the greatest discovery ever made. I did not feel it so much as the prick of a pin." That was the first tooth ever drawn without pain.

²Notes on the History of Anaesthesia—The Wells Memorial Celebration at Hartford, 1894. Early Record of Dentists in Connecticut. By James McManus, D.D.S. Printed by Clark & Smith, Hartford, 1896.

Dr. Wells wanted me to instruct him how to make the gas, which I did, and then I went off about my exhibition business. Dr. Wells tried it and found it successful and then went to Boston to make the discovery known. He called upon this physician and that physician and this dentist and that dentist. Well, they all laughed at him. Had no faith whatever. Among others was his pupil, Dr. Morton. Then he got permission to address a class at college. Dr. Warren said to the class, "There is a gentleman here by the name of Wells who pretends that he has found something to destroy pain. If any of you wish to remain and hear him you can do so. Well, one of the class told me that about one-half of the class did remain and at the close of his remarks he gave the gas to one of the boys. The boy hollered out, although he said that he did not feel any pain, but the students considered it a failure and they hissed and hurt the feeling of Dr. Wells. He returned to Hartford and used the gas all of 1845.

58

Dec 6th Paid Dr D. P. Dodge Dr
 To Filling 1 tooth for self 1.50
 " 7th " Filling 4 teeth for son 4.00

Dec 7th Charles W. Everett Dr
 Paid To Filling 2 teeth — 2.00
 " " " 1 do with tin — 1.75
 2.75

Cr. By Book ————— 2.00

" 11th Paid Gov. Ellsworth Dr
 To Filling 3 teeth for Miss E.

" George W. Cornin Dr
 To Extracting tooth for daughter 50

Paid Maria Jones East Hartford
 To Filling 2 teeth ————— 2.00

Paid Daniel Seymour Dr
 To Extracting tooth for Daughter 25

Paid Rev. Mr. Raymond Dr
 To filling 3 teeth for wife 3.00
 " " " at house 1.00

These two pages are reproduced from Horace Wells' Day Book. They are entries made in Horace Wells' handwriting on the day that he inhaled Nitrous Oxide and had one of his upper wisdom teeth extracted. The date was Dec. 11th, 1844. Unfortunately Dr. Wells did not make any entry in his Day Book concerning this great experiment that was

Dec 21st C. A. Warner Dr New Britain
To filling 9 teeth for Wife - \$9.00

21. Dr A. Welch (Wethersfield) Dr
To Filling 15 teeth for Son
30th Do Filling 3 teeth for Daughter -

30 Do

31. Geo Ellsworth Dr
To Cleansing teeth for Wife - 1.00
" Filling 2 teeth " " 2.00

End of 1844

to result in surgical anesthesia. These pages do prove, however, Wells' statement that immediately after his first experiment he devoted all his time for the next two weeks to experimenting with the gas. Note that there aren't any entries from December 11 to December 21, 1844, and then none until December 30, 1844.

THE WELLS' STATUE³

The bronze statue of the late Dr. Horace Wells of this city, the discoverer of modern anesthesia, was yesterday placed in the east park, upon a temporary wooden pedestal. It stands a little west of the fountain, in the angle made by the paths leading to Trinity and Ford Streets.

It is a portrait statue, and there is nothing ideal in either the figure or the drapery. It represents the doctor standing with a small cane in his hand, and clothed in the style of garments usually worn by him—dress coat and large circular cloak with broad collar. The face was modeled from a plaster cast taken after death, and an old daguerreotype, and is thought to be an excellent likeness. The statue stands easy and firmly and looks like the figure of an elegant gentleman. As a work of sculpture its treatment is very simple, it being evident that the artist has sought to preserve the form of the figure as well as the general outline, not allowing the details of the drapery, its innumerable breaks and folds, to arrest attention as the most important and prominent feature of the work, and in this respect it is in marked contrast to the usual American style of sculpture in modern costume. One of the most serious faults with many statues is the appearance of the pantaloons. In this case they are pleasantly, naturally and successfully treated, and the figure carries its entire drapery with dignity. The general effect of the statue is large and imposing—it looks like a statue rather than simply a bronze man, and impresses one at once as a work of great strength.

The accessories at the right side of the statue, which assist the composition as well as make a support, are a large book upon which is the word "Anesthesia," a small box and a scroll, the latter bearing the noble and generous words of the doctor in his announcement of the discovery: "I was desirous that it should be as free as the air we breathe."

To model a statue with modern drapery so that the effect will be pleasing as well as lifelike, some serious difficulties have to be overcome. In this instance the artist seems to have successfully met all the demands of a difficult composition, and he has certainly succeeded in making a fine statue and not merely a pretty figure.

The sculptor by whom the work has been done is Mr. T. H. Bartlett, well known to many of our citizens who will be glad to congratulate him upon his very marked success. It was cast in Paris, under his supervision, by M. Gruet (the favorite founder of the eminent sculptors Barye and Fremiet) and is unquestionably a very superior specimen of large bronze casting. It was cast in one piece and was perfect as it came from the mould, a feat very

³From the *Hartford Daily Courant*, Friday morning, July 23, 1875, volume 39, No. 175, whole No. 11453.



PORTRAIT STATUE OF HORACE WELLS ERECTED BY THE CITIZENS OF HARTFORD AND CONNECTICUT AND THE DENTISTS OF THE UNITED STATES. IT IS LOCATED ON THE EAST SIDE OF BUSHNELL PARK.

seldom accomplished in small work, and still more rarely in such large and intricate pieces.

The statue is erected at the joint expense of the city and state, each having contributed the sum of \$5,000—secured mainly through the exertions of Drs. E. K. Hunt, H. P. Stearns, and James McManus. Steps will at once be taken to raise the necessary funds to place the statue on a bronze pedestal, with appropriate bas-reliefs, designed by Mr. Bartlett. When this is done and the statue is finally placed in its permanent position, it is contemplated to have appropriate exercises. We hope soon to hear that the money has been raised and that the work of the pedestal is in hand.

There are now upon the park two statues placed there by private munificence and one by the state and city. We trust that some of our liberal and wealthy citizens will be moved to offer further contributions looking not only to the adornment of the park but to education and culture in art. There are many subjects of local as well as national interest which can be well treated in bronze or marble, and there are charming and sightly spots upon the park which it should be our pride to have occupied with works of art.

My dear Sir
 I am to sail for
 France you will much oblige me
 by forwarding a passport to New York
 which the following is a description
 of my person
 Age 32 years
 Height 5 ft 6 inches
 Complexion
 Eyes
 Hair
 Complexion light
 As I am expected to sail over soon you
 will confer a great favour by forwarding
 the passport by the next mail and
 direct it to New York
 Yours truly
 Bruce Wells

DR. WELLS' LETTER OF DECEMBER 18, 1846,
 TO HON. JAMES DIXON REQUESTING A PASSPORT.

MARINE LIST.

PORT OF HARTFORD.

ARRIVED.

Dec. 6. Steam Schr. Uncas, Mills, New York.
Sloop Belie, Brooks, Albany.
" Merchant, Babcock, New York.

SAILED.

9. Steam Schr. Mohawk, Clark, New York.

A GRAND EXHIBITION of the effects produced by inhaling **NITROUS OXIDE, EXHILARATING or LAUGHING GAS!** will be given at **UNION HALL, THIS (Tuesday) EVENING, Dec. 10th, 1844.** **FORTY GALLONS OF GAS** will be prepared and administered to all in the audience who desire to inhale it. **TWELVE YOUNG MEN** have volunteered to inhale the Gas, to commence the entertainment.

SEVEN STRONG MEN are engaged to occupy the front row, to protect those under the influence of the Gas from injuring themselves or others. This course is adopted that no apprehension of danger may be entertained. Probably no one will attempt to fight.

THE EFFECT of the Gas is to make those who inhale it either Laugh, Sing, Dance, Speak or Fight, &c., according to the leading trait of their character. They seem to retain consciousness enough to not say or do that which they could have occasion to regret.

N. B. The Gas will be administered only to gentlemen of the first respectability. The object is to make the entertainment in every respect a genteel affair.

MR. COLTON, who offers this entertainment, gave two of the same character last Spring, in the Broadway Tabernacle, New York which were attended by over four thousand ladies and gentlemen, a full account of which may be found in the New Mirror of April 6th, by N. P. Willis. Being on a visit to Hartford, he offers this entertainment at the earnest solicitation of friends. It is his wish and intention to *deserve* and receive the patronage of the first class. He believes he can make them laugh more than they have for six months previous. The entertainment is *scientific* to those who make it scientific.

Those who inhale the Gas once, are always anxious to inhale it the second time. There is not an exception to this rule.

No language can describe the delightful sensation produced. Robert Southey, (poet) once said that "the atmosphere of the highest of all possible heavens must be composed of this Gas."

For a full account of the effect produced upon some of the most distinguished men of Europe, see Hooper's Medical Dictionary, under the head of Nitrogen.

MR. COLTON will be the first to inhale the Gas.

The History and properties of the Gas will be explained at the commencement of the entertainment.

The entertainment will close with a few of the most surprising **CHEMICAL EXPERIMENTS.**

MR. COLTON will give a private entertainment to those Ladies who desire to inhale the Gas, **TUESDAY**, between 12 and 1 o'clock, **FREE.** None but Ladies will be admitted. This is intended for those who desire to inhale the Gas, although others will be admitted.

Entertainment to commence at 7 o'clock. Tickets 25 cents—for sale at the principal Bookstores and at the Door.

dec 10 1d

(From—Hartford Courant, Dec. 10, 1844)

COPY OF GARDNER Q. COLTON'S ADVERTISEMENT OF HIS "GRAND EXHIBITION—OF NITROUS OXIDE—." IT WAS WHILE ATTENDING THIS DEMONSTRATION THAT DR. WELLS CONCEIVED THE IDEA OF INHALATION ANESTHESIA.

THE FIFTIETH ANNIVERSARY CELEBRATION OF THE
DISCOVERY OF ANESTHESIA BY HORACE WELLS
HELD AT HARTFORD, CONN.⁴

"The fiftieth anniversary of the discovery of anesthesia by Dr. Horace Wells in this city, December 11, 1844, was formally observed by a banquet at Habenstein's cafe. The banquet was given under the auspices of the Connecticut Dental Association and was presided over by its president, Dr. Charles P. Graham of Middletown.

"President Graham in opening the postprandial exercises referred to the beneficent effects on humanity of Dr. Wells' discovery. He introduced the several speakers of the evening in a felicitous manner, who were Mr. Chas. T. Wells, the only living descendant and son of Dr. Horace Wells. Mayor Leverett Brainard, Dr. C. C. Barker, of Meriden, President of the Connecticut Valley Dental Society, Dr. G. Q. Colton, of New York, eighty-one years of age, and who as a young man was associated with Dr. Wells at the time of his experimenting fifty years ago. He retold the story of the discovery. Dr. G. W. Russell, Dr. P. W. Ellsworth, Dr. H. P. Stearns, superintendent of the Hartford Insane Retreat, President G. Williamson Smith of Trinity College, Henry Barnard, LL. D., Judge Thomas McManus and Mr. E. S. Woods, the sculptor.

"Tomorrow the anniversary will be celebrated at Philadelphia where three dental colleges will participate. The formal celebration will be held there, but this banquet tonight is the introductory celebration of the anniversary. The tablet that has been erected has been provided by only practicing dentists and the contributors are located all over the country from Portland, Maine, to Portland, Oregon. The erection of the tablet is a friendly tribute from the entire country.

"This tablet is a fine piece of bronze work from the foundry of Mr. Mossman, of Chicopee, Mass. It is five feet long by twenty-nine inches wide. . . .

"It is probably the largest out-door Memorial Tablet placed on the front of a public building in this country. The committee was very fortunate in their selection of the sculptor, Mr. E. S. Woods, of Hartford. He has made a beautiful and artistic tablet that will attract for years to come, the attention of all lovers of the true and beautiful in art.

"Dr. James McManus moved that the tablet be presented to the city of Hartford and the members voted unanimously to make the presentation.

⁴McManus, James: "The History of Anaesthesia." The Connecticut Quarterly, Vol. 1, No. 1, p. 36-66, Jan., Feb., March, 1895.



TABLET TO DR. WELLS IN THE CITY OF HARTFORD.

After a rising vote of thanks had been extended to sculptor Woods, the party marched up Pratt Street and down Main, stopping in front of the building of the D. F. Robinson estate on which the tablet is erected. Here at 12:40 o'clock, Sculptor E. S. Woods cut the cord that upheld the veil and the son of Dr. Wells, Charles T. Wells of this city, unveiled the tablet.

"Dr. James McManus in a brief and fitting speech presented the tablet to the city, and Mayor Brainard made a patriotic response accepting the tablet in behalf of the city and assuring the Connecticut Dental Association of the approval of his action by the Common Council. The unveiling and presentation to the city at this hour of the night made the scene extremely impressive. The party then broke up after a hearty clapping of hands at the completion of the enterprise. . . ."

NOTE CONCERNING THE MEMORIAL BUST OF HORACE WELLS

"A committee having its (the memorial bust) preparation in charge was appointed by the American Dental Association, and the funds necessary were contributed by that organization and, through subscription, by members of the dental profession in the United States. The work has required time for its completion, but the result has been very satisfactory to the committee.

"The bust was modeled by J. Scott Hartley, the celebrated sculptor of New York City, and then cast in bronze by the Gorham Company, through the firm of Baily, Banks & Biddle, of Philadelphia. It is regarded by the son of Dr. Wells as being an excellent likeness.

"The bust will be deposited in the National Medical Museum, Washington, D. C., by the chairman of the committee, Dr. J. D. Thomas, to whom the dental profession owes a debt of gratitude for his energetic efforts to have this memorial worthy the man and the discovery it represents. Its final resting place is peculiarly appropriate, and it will there remain for future generations to honor the discoverer of anesthesia and be an ever-present and enduring evidence of the gratitude felt for Horace Wells by the dental profession."—*International Dental Journal*, Vol. 20, 1899.

(Now located in Army Medical Library, Washington, D. C.)



MEMORIAL BUST OF HORACE WELLS

UNVEILING AND DESCRIPTION OF PEW END IN TRIBUTE TO HORACE WELLS

A carved pew end in tribute to Horace Wells, discoverer of anesthesia, was unveiled in the College Chapel on Saturday afternoon, December 18, 1937. The ceremonies were a part of a special Vesper Service at five o'clock attended by members of the Horace Wells Club, the Hartford Medical and Dental Societies, and the college students.

The date marked the anniversary of the day in 1844, on which Dr. Wells underwent a dental operation after having had Professor G. Q. Colton, a chemist lecturer, administer nitrous oxide, popularly known as "laughing gas."

A profile of Dr. Wells is in the center of the pew end. At the top is a figure of Aesculapius, Greek God of the medical arts. The third figure shown on the pew end is that of St. Appollonia, a martyr of Alexandria, who is the patroness of dentistry.

Dr. Clarence G. Brooks of New London, President of the Horace Wells Club, presented the pew end, and Dr. Ogilby accepted it in behalf of the College. A former president of the club, Dr. Albert W. Crosby of New London, unveiled the pew end. Dr. Walter R. Steiner of Hartford made an address outlining the historical and scientific aspects of the discovery of anesthesia.

"To make a discovery, one must find out or invent something, then demonstrate it and proclaim it to the world; finally he must convince the world of the validity of his discovery. It is because Dr. Wells proclaimed his discovery to the world that credit for the discovery of anesthesia must be given to him," said Dr. Steiner.

"It is not debatable," Dr. Steiner went on, "that Crawford W. Long first used ether in 1842, but he did not proclaim it to the world, which knew nothing of his discovery until 1849. On the other hand, after Wells discovered the principle of anesthesia, he demonstrated it satisfactorily here in Hartford and proclaimed it so that it was well known in Connecticut and other portions of the United States. Resolutions acknowledging Wells' priority in the discovery came from the Hartford Medical Society in 1859, the Connecticut State Medical Society in 1876, the American Medical Association in 1870, The New York State Medical Society in 1860, and the Gynecological Society of Boston in 1870. Although these societies have given him credit for the discovery there are, unfortunately, some people who give credit to Dr. William T. G. Morton who discovered anesthesia in 1846, two years after Wells had made it known."

President Ogilby, in his speech of acceptance, remarked on the large number of Trinity students who are taking pre-medical courses, and he told of the deep veneration and respect in which medicine, dentistry, and public health are held at Trinity.



CARVED PEW END IN TRIBUTE TO HORACE WELLS
IN THE CHAPEL, TRINITY COLLEGE, HARTFORD, CONN.



MEMORIAL TO HORACE WELLS IN THE
PLACE DES ETATS-UNIS, PARIS.

UNVEILING OF THE MONUMENT TO HORACE WELLS⁵

On March 27th 1909 the inauguration of the monument to Horace Wells took place at the United States Square on the Avenue de Jena, under the patronage of the Council, the Ministers of the Interior, of Foreign Affairs, and, of Public Instruction, of the Institute and the Academy of Science, and of Senator Gerente, mayor of the sixteenth district.

This auspicious occasion was favored by beautiful weather, and the attendance was very large. Among those present were noted the delegate of the Minister of the Interior, George Berry; M. Gerente, senator and mayor of the 16th district; M. Laurent, representing the prefect of the Seine; Professor Dastre; Dr. Jenkins, president of the American Dental Club of Paris; M. Paterson, president of the F. D. I.; Dr. Godon, director of the Dental School of Paris; Francis Jean, president of the F. D. N., the foreign delegates; M. Thomas, president of the Odontological Association.

At half-past ten M. Quincerot, president of the committee, made his

⁵*The Dental Cosmos*, Vol. LII, January 1910, No. 1, pp. 669-679.

address. After having expressed his gratitude to the officials, his co-workers, to all the foreign and native confreres that were attending the ceremony, he reviewed the life of Horace Wells. Then M. Miniot, vice-president of the Municipal Council, representing the city of Paris, accepted the monument on behalf of the city. Under the sound of the American anthem played by a military band, the covering fell from the beautiful work, by the sculptor Bertrand-Boutee, while the medallion of the great savant Paul Bert was seen on the right side of the base of the monument. Two floral tributes were laid at the foot of the statue by Dr. Subirana of Spain and Dr. Guerini of Italy. The memorable address of Dr. Jenkins, president of the American Dental Club, was greeted with the "Marseillaise."

There was a rush to hear the address of Professor Dastre. Suitably to the authority which his name implies he drew with a masterly hand an historical picture of surgical anesthesia, giving Horace Wells the deserved credit of this discovery. This address, which betrayed deep historical and scientific research, was greeted with frantic applause. The address is printed below.

Other addresses were made by M. Miniot, vice-president of the Municipal Council, to thank the committee for the gift of the monument donated to the city of Paris; by M. Francis Jean, representing the General Dental Association of France; by the foreign delegates notably by Professor Jessen, who in the name of the German dentists did homage to Horace Wells; by Dr. Subirana, who said, "We glorify a martyr of science, who gave to humanity a most wonderful discovery for its relief, but to whom in his lifetime was given in return nothing but injustice and mockery." Finally, by M. Thomas, president of the French Odontological Association.

In closing this brief report, may I be permitted to compliment one of the men to whom the success of this beautiful celebration is due—namely, Dr. George A. Roussel, treasurer, who hates publicity, but who will, I hope, excuse my indiscretion in this matter.

BARRIE, Secretary,
Horace Wells Monument Committee.



MEMORIAL WINDOW TO HORACE WELLS AND HIS WIFE
UNVEILED ON EASTER SUNDAY, 1903.

The window is in Center Church, Hartford, Conn. R. H. Potter, D.D., spoke on Horace Wells and his contribution to suffering mankind at the Vesper Service on this Sunday.



SILVER MEMORIAL WREATH AND PLAQUE. PRESENTED BY THE ODONTOLOGICAL SOCIETY OF MADRID, SPAIN, TO THE CITY OF HARTFORD, CONN., JANUARY 14, 1907.



MONUMENT ERECTED BY CHAS. T. WELLS ON THE WELLS FAMILY BURIAL PLOT IN CEDAR HILL CEMETERY. BURIED HERE ARE DR. HORACE WELLS, HIS WIFE ELIZABETH WALES WELLS AND SON CHAS. T. WELLS.

BURIAL MONUMENT TO THE WELLS FAMILY

Dr. Horace Wells and his wife Elizabeth Wales Wells were first interred in the Old North Burying Ground. On May 18th, 1908, both bodies were removed and brought to Cedar Hill Cemetery for burial. This monument was erected by their son, Chas. T. Wells, who was buried here on June 11th, 1909. The grave markers read:

<p>DR. HORACE WELLS January 21, 1815 January 24, 1848</p>

<p>ELIZABETH WALES WELLS wife of Dr. Horace Wells April 9, 1818 July 17, 1889</p>

<p>CHARLES THOMAS WELLS Son of Dr. Horace Wells and Elizabeth Wales Wells August 26, 1839 June 6, 1909</p>
--

To the face of the granite monument there is fastened a bronze tablet which shows an angel administering anesthesia and below this are the words "THERE SHALL BE NO PAIN." On the right hand side of the monument there is a bronze head with the words below—"I SLEEP TO AWAKEN." The left hand side has the same head with the words—"I AWAKEN TO GLORY." The name Louis Pollen 1909 is cast in each piece of bronze.

The following inscription is cut into the granite on the back of the monument:

HORACE WELLS
1815 - 1848
Discoverer of Anesthesia



DEATH MASK OF HORACE WELLS

The date on which the mask was made or by whom is unknown. It hangs at present in the Boston Medical Library. Mr. James F. Ballard, Director, advises me that he has "been unable to find any reference to the Library's acquisition of Horace Wells' Death Mask. It has been in the Library for a great many years, as I remember seeing it even in the old building at 19 Boylston Place. I suppose that we have had it for sometime previous to 1892." (A replica hangs in the Dental-Medical Library of the University of Pittsburgh.)

AN ESSAY

ON

T E E T H ;

COMPRISING A BRIEF DESCRIPTION

OF THEIR

FORMATION, DISEASES,

AND

PROPER TREATMENT

BY HORACE WELLS

SURGEON DENTIST

HARTFORD.

PRINTED FOR THE AUTHOR,

BY CASE, TIFFANY & CO., PEARL-STREET,

1838.

TITLE PAGE from Dr. Horace Wells' Book.

UNITED STATES PATENT OFFICE.

Horace Wells, of Hartford, Connecticut.

COAL-SIFTER

Specification of Letters Patent No. 1,450, dated December 31, 1839.
To all whom it may concern;

Be it known that I, Horace Wells, of the town and county of Hartford and the State of Connecticut, have invented a new and useful Machine for Separating the Ashes from the Coal and Ashes that have Fallen from the Stove or Grate; and I do hereby declare that the following is a full and clear and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

The machine or sifter consists of an oblong box M which is made some inches longer than the stove pan or draw, the bottom of which is represented by the line marked A in the annexed drawings of which—

Figure 1 is a perspective view, and Fig. 2 is a sectional view through the center, the draw being partly inserted in the case.

The top is represented by the letter C, the back part by the line marked H. The bottom and top are of equal size; the two sides are also of equal size and of the same width as the length of the end represented by the line marked B.

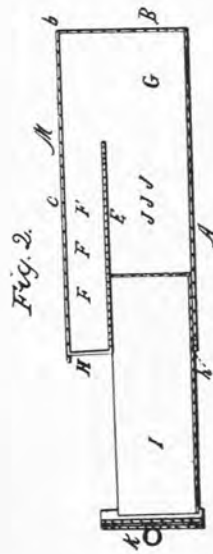
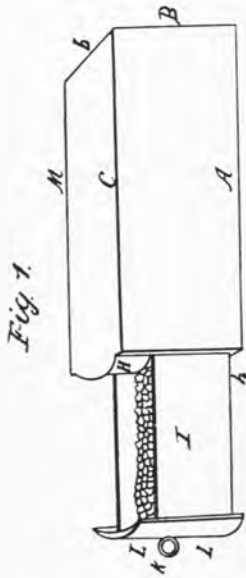
The sieve which is represented by the line marked E, Fig. 2, is not as long by some inches as the bottom or top, but is of the same width and of an equal length with the stove pan or draw, is made by wires crossing each other, or by making holes through a piece of tin or sheet iron or some other substance and sufficient in number and sufficiently large to let the ashes through, which are marked J J J, which is made to receive the stove pan or draw from the space marked f, f, f, into which the ashes fall when the machine is turned over they are separated from the coal by the sieve E.

G represents the space between the stove pan or draw when it is shut within the sifter and the back part B and into which the ashes descend when the case stands on end B.

I represents the stove pan or draw partly inserted and K the handle to the same. The whole machine or sifter is made of sheet tin or iron or other substance.

The stove pan or draw marked I is taken from the stove or grate and contains the ashes and coal that have fallen from the stove or grate, and is inserted in the space marked J, J, J; the draw is then to be shut within the sifter. The whole machine is then turned over bottom side up resting on

H. Wells,
Coal Screen.
N^o 1450. Patented Dec. 31, 1839.



the angle of the case marked *i* on the floor. The end of the machine *H* is then elevated so as to form an angle of about 15 or 20 degrees with the horizon. The machine or sifter is then shaken briskly until the ashes are separated from the coal by the sieve *E* and have fallen into the space *F, F, F*. The end *H* is then still further elevated so that the end of the stove pan shall be parallel with the horizon the end *B* standing of the floor the ashes from the space *F F F* will thus fall into the space *G*. The machine or sifter is then turned so as to again stand upon its bottom *A*. The whole machine is then shaken so as to level the coal in the stove pan *I*. The stove pan *I* which contains the coal separated from the ashes can then be withdrawn—turned over and emptied of its contents which will be the coal or cinders completely separated from ashes dust Etc. To discharge the ashes from the case which will now be in the space *G*—the end *B* must be elevated when the ashes will descend over the bottom *A* and pass out at the end *h*.

What I claim as my invention and which I desire to secure by Letters Patent is—

The combination of the box *M* with the draw or ash pan *I* the whole being constructed and operating in the manner herein described.

H. WELLS.

Witnesses:

NATHAN JOHNSON,
ELIJAH KNOX.

UNITED STATES PATENT OFFICE.
Horace Wells, of Hartford, Connecticut.
SHOWER-BATH.

Specification of Letters Patent No. 4,836, dated November 4, 1846; ante-dated May 4, 1846.

To all whom it may concern:

Be it known that I, Horace Wells, of Hartford, county of Hartford, and State of Connecticut, had invented a new and Improved Shower-Bath; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in elevating the water by means of a double acting force and suction pump, from a cistern in which the pumps are placed, through a pipe into a strainer or colander through which the water is discharged at the top, and returns into the cistern again, thus constantly supplying the pumps, the pumps being worked by the individual who is to be showered, by stepping alternately on one pump and then the other, or in other words, with one foot and then the other, he standing on platforms coming from the tops of the pumps made for that purpose, and at the same time while working the pumps he receives the water thus elevated from the strainer above, by this arrangement a small quantity of water will furnish a copious bath.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1, is a perspective elevation of the bath (the pumps being removed from the cistern). Fig. 2 is an elevation of the pumps and Fig. 3, is a plan of the pump boxes.

Corresponding letters in each figure refer to the same parts.

A A, Fig. 1, is a box about two feet square and six high, it consists of four elevated pieces and a square frame at the bottom and top—or the whole may be called a square frame, this frame is surrounded with varnished or oiled cloth, stretched across and tacked or oiled cloth. The principal object is to keep the spray from wetting the floor and to return it all to the cistern, for the supply of the pumps.

E, E, is the cistern with the pumps out. It consists of a small water tight box capable of holding about two or three gallons, and is placed in and furnishes the only bottom to the bath.

(e e e) are small pieces of iron projecting from the inside of the cistern having holes in them through which the rods which hold and guide the pumps work.

(b) is a rod extending across and resting its ends on the top of the cistern. This is furnished with two pulleys (oo) over which a cord (x) passes, the

H. Wells,

Bath,

No. 4,836.

Patented Nov. 4, 1846

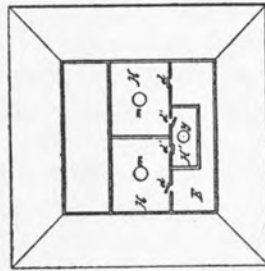


Fig. 3

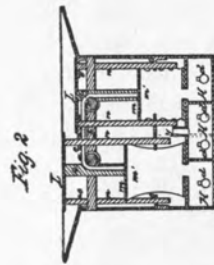


Fig. 2

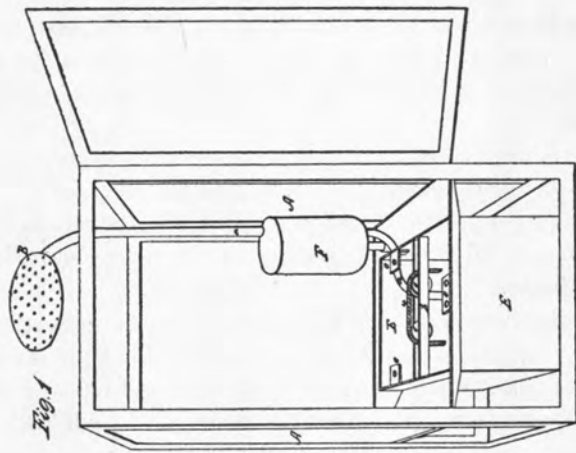


Fig. 1

ends of said cords being attached to the top of the pumps see Fig. 2, for the purpose of elevating the one when the other is depressed. I do not confine myself to working them with a cord solely as they can be worked with a rack and pinion, with a chain, spring or various other means that are resorted to for the same purpose.

(a a) is a pipe through which the water is elevated.

F is an air cylinder for the purpose of furnishing a constant stream, and is made in all respects like those used for similar objects.

B, is the strainer or colander. It is of a lenticular figure. It stands horizontal, the lower sides being perforated and it is attached to the conducting pipe (a a) and it may be made of any convenient size.

Fig. 2 is a side elevation of the pumps. They consist of two heads (m) made of wood or metal surrounded with cloth, leather or caoutchouc cloth, (m' m'). I prefer the latter material but either will answer. This cloth forms a bag from four to six inches long for each pump. Their lower ends being fastened around a hole in the top of the two square boxes H H below. These boxes or chambers H H are represented in Figs. 2 and 3, Fig. 3, being a sectional plan thereof shows two common hinged valves (d d) are placed over holes in the side of the chambers H H which communicate with the surrounding cistern E these valves open inward—two other valves (d' d') are also applied to the chambers that open a communication outward into a chamber H' connecting with pipe (a) of Fig. 1, by means of pipe (y).

The tops (m) of the pumps are connected with two platforms L L on which the bather stands with one foot on each to work the pumps so that when he throws his weight onto one platform he elevates the other by means of the cord and pulleys that connect the pumps as above named; the platforms are guided in their horizontal position by the guide rods (n n) that pass through the guides (e e) above referred to while being elevated or depressed. By this arrangement it will be obvious that as the weight of the bather is thrown alternately onto the two pumps a constant supply is maintained above.

I am aware that boxes for shower baths have been made similar to the one described before, therefore I do not claim the box, but

What I do claim as my invention and desire to secure by Letters Patent is—

The pump or pumps worked by treadles in combination with the shower bath or baths, as herein described or in any manner substantially the same so that the pump can be worked while the hands are left at liberty.

HORACE WELLS.

Witnesses:

JOSEPH B. STARR,
S. SMITH.

TESTIMONIALS RELATIVE TO DR. HORACE WELLS

At a meeting of the City Council of Hartford, on Monday evening, March 21st, 1852, the following Preamble and Resolutions were unanimously adopted:

"WHEREAS, The members of this Council have learned that a report is to be made by a committee of Congress, awarding the honor of the discovery of the use of anesthetic agents in surgical operations to W. T. G. Morton, of Boston, and recommending an appropriation of one hundred thousand dollars to the said Morton, for the said discovery; therefore be it

"RESOLVED, That the design of this appropriation being to remunerate the person who has by this discovery greatly benefited mankind at large, we consider that the late Horace Wells, of this city, is clearly entitled to precedence as having been the true author of this most important discovery, and to him, and him alone, is due the honor and reward.

"RESOLVED, That to our personal knowledge, the death of Dr. Wells occurred at the moment when he was on the point of fully establishing the justice of his claim, not only in this country, but also abroad, and while his death left no one to defend his cause, his opponents have spared no exertions to avail themselves of the opportunity which his death has given them, to forward their claims.

"RESOLVED, That this discovery, one of the most remarkable of the age, may justly be considered an honor to the State, and is deserving of an especial notice from our next Legislature.

"RESOLVED, That being informed that Mrs. Wells, the widow of the said Horace Wells, has forwarded a petition to Congress, together with documentary evidence of her claim as representative of her husband, satisfactory to some of our most eminent citizens and surgeons, that a copy of these resolutions duly signed and evidenced, be forwarded to the Hon. Charles Chapman, member of Congress for this District; also, that additional copies be forwarded to each of the Congressional delegates from this State, now in Washington, and that they be requested to use all proper exertions to obtain a reversal of the decision of said Committee, and an award in favor of Mrs. Wells, as we are fully persuaded that the honor of this discovery belongs wholly and unconditionally to the late Horace Wells."

REPORT OF A SPECIAL COMMITTEE OF THE NEW YORK STATE MEDICAL SOCIETY

Trns., 1860, p. 187, et seq.

. . . Without entering into further detail, your committee close by the recapitulation of the following positions:

First. Dr. Wells was the first man in this country, and so far as we know, in any other, who ever demonstrated, unequivocally, the fact that the human system could be rendered insensible to pain during surgical operations, by a process of inhalation. He succeeded in establishing this fact almost two years before any experiment of the same kind was attempted by Morton or Jackson.

Second. This priority of experiment is not denied by either Jackson or Morton; but, on the contrary, it is acknowledged by both.

Third. The two preceding positions which are at once undeniable, and are undenied, we contend settle the whole question and give the priority of discovery to Dr. Wells.

Fourth. The only claim of Drs. Jackson and Morton is, that they demonstrated by experiment near two years after Dr. Wells' first experiments, that sulphuric ether produced the same effect claimed for Dr. Wells' experiments with nitrous oxide, but with greater ease and efficacy.

Fifth. We contend, if their claim was fully made out, it would in no way invalidate Dr. Wells' claims as the original discoverer of anesthesia.

Sixth. We show that Drs. Morton and Jackson were fully aware of Dr. Wells' claims of experiments more than a year and a half before their first attempts to demonstrate the qualities of sulphuric ether as an anaesthetic agent.

Seventh. We assert that the fact is undisputed, that all scientific, most medical, and a large portion of all well informed persons, have long known that the effects of the sulphuric ether of Drs. Morton and Jackson, and the nitrous oxide of Dr. Wells upon the human system are nearly or quite identical, and that Dr. Wells was fully aware of the fact.

Eighth. We conclude from the two last propositions, that Drs. Morton and Jackson were led to their experiments from a knowledge of Wells' claims and demonstrations, and their knowledge of the similarity of effects referred to.

Ninth. We thus dismiss the claims of these two gentlemen, on the double ground that their experiments put forth no claim to priority over those of Dr. Wells; and second, that they were plainly based upon those of Dr. Wells, and were substantially identical with his.

All of which is respectfully submitted,

CHAS. S. GOODRICH,
FRANK H. HAMILTON,
DANIEL T. JONES,
Committee.

RESOLUTIONS PASSED BY AMERICAN DENTAL ASSOCIATION, JULY, 1864

"WHEREAS, Dr. Horace Wells, of Hartford, Connecticut, in the year 1844, did introduce to the public in his practice of dental surgery, nitrous oxide gas as an anesthetic for the painless extraction of teeth, and

"WHEREAS, nitrous oxide gas, as exhibited by Horace Wells, proved absolutely successful, as is confirmed by abundant documentary evidence at hand, clearly setting forth his claims, as the first to bring to public notice any agent producing anesthesia; therefore be it

"RESOLVED, By the American Dental Association, That to Horace Wells, of Hartford, Connecticut (now deceased), belongs the credit and honor of the introduction of anesthesia in the United States of America, and we do firmly protest the injustice done to truth and the memory of Dr. Horace Wells in the effort made during a series of years, and especially at the last session of Congress, to award the credit to other person or persons."

MONUMENT TO DR. HORACE WELLS

At a regular meeting of the Hartford Society of Dentists, held at the office of Dr. C. M. Hooker, April 11, 1870, the following resolutions, presented by Dr. McManus, were adopted:

"RESOLVED, That the natural gratitude due to the memory of public benefactors, imperatively demands that the City of Hartford and the State of Connecticut, with the Medical and Dental professions, cause a suitable monument to be erected in the public park of this city, in memory of Dr. Horace Wells, the Discoverer of Anesthesia.

"RESOLVED, That Drs. J. M. Riggs, James McManus, E. E. Crofoot, C. M. Hooker and Wm. Blatchley, be and are hereby appointed a committee, whose duty it shall be to cause suitable petitions to be presented to the City Council of Hartford, and the General Assembly of this State, in furtherance of this object, and to obtain signatures to the same."

STATE OF CONNECTICUT, }
Office of Secretary of State. }

General Assembly, }
May Session, A. D. 1870. }

APPROPRIATING MONEY TO AID IN ERECTING A MONUMENT
TO THE LATE HORACE WELLS

Resolved by this Assembly, That the Comptroller of Public Accounts be, and he is hereby authorized and directed to draw his order on the Treasurer of this State for the sum of five thousand dollars payable to Hon. Marshall Jewell, as Trustee, to be appropriated by him to aid in the erection of a monument to the late Horace Wells, of Hartford, the discoverer of Anesthesia, when an amount equal to said sum of five thousand

dollars shall have been raised by subscription for the above-named purpose; said monument to be erected on the park in the City of Hartford, at such place as the City Council of said City of Hartford may direct.

Approved July 19, 1870.

STATE OF CONNECTICUT, }
Office of Secretary of State. } ss:

I hereby certify that the foregoing is a true copy of record in this office.

IN TESTIMONY WHEREOF, I have hereunto set my hand, and affixed the Seal of said State, at Hartford, this thirteenth day of October, A. D. 1870.

(SEAL)

THOS. M. WALLER,
Secretary of State.

REPORT OF A COMMITTEE TO THE CONNECTICUT MEDICAL SOCIETY,
MAY, 1870

The Committee reported the preamble and resolutions presented by E. K. Hunt, M.D., and recommended their adoption.

On motion they were adopted, as follows, viz.:

"WHEREAS, It is now proved beyond a reasonable doubt that the late Dr. Horace Wells, of Hartford, is entitled to the distinguished honor of having demonstrated, on the 11th of December, 1844, the great fact that the human system may be rendered insensible during surgical operations by the inhalation of nitrous oxyd gas; and

"WHEREAS, He at once made known the discovery to the medical and dental professions in Hartford, and continued to perform operations himself and assist others in performing them, while the patients were under the influence of this substance, until his death in 1848; and

"WHEREAS, It is also proved that he used to some extent the vapor of sulphuric ether for the same purpose as early as the winter of 1844-5; and

"WHEREAS, During the same winter, and a short time after his discovery, he visited the cities of Boston and New York, and made known to several of the most distinguished members of the medical profession in those cities his use of both these agents, thereby exhibiting the most commendable desire to make known to the world the knowledge of his discovery; and

"WHEREAS, These facts are proved to have occurred nearly two years prior to the claim of discovery by any other person or persons; therefore

"RESOLVED, That in the opinion of this Society there can no longer exist a reasonable doubt that to Dr. Wells *alone* belongs the honor of having discovered and demonstrated the great principle of modern anesthesia.

"It was further

"RESOLVED, That the President and Fellows of the State Medical Society, now in session, finding the accompanying preamble and resolutions, which

have just been read, and the latter passed with great unanimity at the recent meeting of the National Medical Association, correctly to express the deliberately-formed opinion and judgment of this body as to the subject to which they refer, hereby cordially approve and endorse the same; and for the purpose of more fully showing its sense of the great value of the discovery therein named, and the just claim of the discoverer to the lasting gratitude of the medical profession and mankind, do appoint a committee of three of our number whose duty it shall be immediately to take such measures as shall seem to it best, to secure the erection of a monument which shall fully commemorate the great fact of the discovery, and forever perpetuate the name and memory of its discoverer."

ACTION OF THE AMERICAN MEDICAL ASSOCIATION AT ITS SESSION IN
WASHINGTON, MAY, 1870

On motion of Dr. H. R. Stoker, of Massachusetts, it was

"RESOLVED, That the honor of the discovery of practical anesthesia is due to the late Dr. Horace Wells, of Connecticut."

At the Sixth Annual Meeting of the "Connecticut State Dental Society," held at New Haven, May 17th, 1870, the following resolutions, presented by James McManus, D.D.S., were adopted:

"RESOLVED, That the natural gratitude due to the memory of public benefactors, imperatively demands that the City of Hartford and the State of Connecticut, with the Medical and Dental professions, cause a suitable monument to be erected in the Public Park in Hartford in memory of Dr. Horace Wells the discoverer of Anesthesia.

"RESOLVED, That Drs. James McManus, J. M. Riggs and I. Woolworth be, and are hereby appointed a Committee to act in conjunction with committees from other societies for the purpose of procuring funds."

Boston, Mass., 20th October, 1870.

At the Thirty-third Regular Meeting of the Gynaecological Society of Boston, held on May 3rd, 1870,

Dr. Warner, of the Committee appointed by the Society to investigate the subject of the History of Practical Anesthesia, with reference to a settlement of the question as to whom belongs the honor of its discovery, reported in favor of Dr. Horace Wells, of Hartford, Conn., and offered in behalf of the Committee, the others of whom were Drs. Sullivan and Dutton, the following resolution:

"RESOLVED, That after careful investigation of all the evidence presented, the honor of the solution of the problem of practical anesthesia, as distinguished from the suggestion of any special agent, belongs without the shadow

of a doubt to the late Dr. Horace Wells, of Hartford, Connecticut."

The resolution was unanimously adopted, and it was ordered that it should be telegraphed by the Secretary to the delegates of the Society, at present in Washington, in attendance upon the Session of the American Medical Association, with instructions to present it to that body in furtherance of any attempt that might be made to render a tardy justice to the memory of the late Dr. Horace Wells.

HARTFORD COUNTY MEDICAL SOCIETY—THE ANNUAL MEETING

The annual meeting of the Hartford County Medical Society was held at the Hospital yesterday. The following resolutions were presented by Dr. Stearns, and adopted by the Society unanimously:

"WHEREAS, It is now proved beyond a reasonable doubt, that the late Dr. Horace Wells, of Hartford, is entitled to the distinguished honor of having demonstrated, on the 11th of December, 1844, the great fact that the human system may be rendered insensible during surgical operations by the inhalation of nitrous oxide gas; and

"WHEREAS, He at once made known this discovery to the medical and dental professions in Hartford, and continued to perform operations himself and assist others in performing them, while the patients were under the influence of this substance, until his death, in 1848; and

"WHEREAS, It is also proved that he used to some extent the vapor of sulphuric ether for the same purpose as early as the winter of 1844-'45; and

"WHEREAS, During the same winter, and a short time after his discovery, he visited the cities of Boston and New York, and made known to several of the most distinguished members of the medical profession in those cities the use of both these agents, thereby exhibiting the most commendable desire to make known to the world the knowledge of his discovery; and

"WHEREAS, These facts are proved to have occurred nearly two years prior to the claim of discovery by any other person or persons;

"THEREFORE RESOLVED, That in the opinion of this Society there can no longer exist a reasonable doubt that to Dr. Wells *alone* belongs the honor of having discovered and demonstrated the great principle of modern anesthesia.

"RESOLVED, That measures be at this time taken to secure as far as practicable, the recognition of this fact by the profession at large throughout the country, and to this end that delegates now appointed by this Society, to attend the meeting of The American Medical Association, about to be holden at Washington, be instructed to use such means as in their judgment will prove most likely to accomplish the herein above stated."

CHARLES THOMAS WELLS' DESCRIPTION OF HIS FATHER GIVEN IN
PHILADELPHIA, PA., AT THE FIFTIETH ANNIVERSARY OF THE
DISCOVERY OF ANESTHESIA BY HORACE WELLS*

"Dr. Darby next introduced the son of Horace Wells, saying: 'There is put one other speaker, and that will be the son of Horace Wells. We are very glad to have here tonight a lineal descendant of Horace Wells, and it gives me pleasure to call upon Charles T. Wells, of New York, to respond to the toast, "Personal Reminiscences".'

"Mr. Wells responded: 'Mr. President and gentlemen, the subject "Reminiscences" calls up to me much of the past and much that is sad. I was but little more than five years of age when this discovery you celebrate today was made, and too young then to comprehend its full value or realize its importance, as I did later. I remember my father well, and my recollection is helped somewhat by friends of his and mine, some of them living today, who knew him intimately and are familiar with the facts connected with this discovery. He was gentle and quiet in temperament, considerate of others, and beloved by all. He was a Christian gentleman. He studied much; was observant and interested in whatever of discovery and invention took place in those days. He was a good deal of a naturalist, and at one time lectured on natural history, and I remember attending one of those lectures. He had inventive faculties of a high order, and had invented some of the instruments used in his practice and some household appliances only for personal use, which have since come into general use. I remember well his office where this discovery was made, and was often there. I liked to be with him, and it was an attractive place to me, for he had there cases of butterflies and stuffed birds, and other things that interested me. . . .'

"I remember his times of abstraction when, with eyes closed, he was studying some subject, as he often did, and we were careful not to disturb him then.

"He was sensitive to the infliction of pain in his practice, and had given much thought for at least two years before the event you celebrate today to the possibility of rendering one unconscious of pain during surgical operations. That discovery was not one of accident or chance. He was looking for it and realized it on that 11th day of December, 1844, exclaiming: "It's the greatest discovery ever made." More than this, he followed these experiments (always upon himself), with a view of finding other agents to produce the same effect, and hoped in the possibility of some by which one could be rendered insensible to pain while conscious otherwise. He used ether, too, but gave the preference to nitrous oxid gas.

*Discovery of Anesthesia by Horace Wells—Memorial Services at the Fiftieth Anniversary. Printed by Patterson & White Company, Philadelphia, 1900.

“He suffered in health by these experiments, and at times was obliged to relinquish his practice for a while.

“He did not seek, as some other claimants did later, to restrict its use or to profit in its use by others, but expressed the wish that “it be as free as the air we breathe.”

“In December, 1846, he went to France and was received with honors, and was afterwards made an honorary member of the Parisian Medical Society, and received an urgent and distinguished call to remove to Paris.

“This discovery brought to him little but trouble and controversy, and he died at the early age of thirty-three, leaving only the legacy of a good name and the honor of his discovery. For many years following his death, others sought to rob him of the honor due him and obtain recognition and public money. Those years were full of trouble, and I wish at this time to pay a grateful tribute to the Hon. Truman Smith, United States Senator from Connecticut, to whom we owe much. Other claims coming before Congress, upon investigation, he became convinced of the justice of that of Horace Wells, became his defender and champion, ever after giving his time and pen freely to his cause and defeating attempts by others for recognition and appropriation of money.

“Justice moves slowly at times, but it has come in these later years, and it is a satisfaction to me that my mother, ever loyal to his memory, suffering much in the earlier years, refusing more than once offers of compromise by which large sums could probably have been obtained, lived to see him fully recognized and honored as the author of this discovery.

“You of his profession have repeatedly honored his memory; for this and the honor and justice you pay him to-day, I thank you.

“It means much, very much to me, his only descendant; more, I believe, than it can to any one else living, and it is a satisfaction to me that he accomplished so much of blessing to mankind.’ . . .”

RESOLUTION UNANIMOUSLY ADOPTED BY A SPECIAL SESSION OF THE
CONNECTICUT STATE LEGISLATURE ON JANUARY 28, 1944

WHEREAS, For centuries a way to make the human body safely insensible to pain during surgical operations and related conditions of suffering, had been a hopeful dream; and

WHEREAS, That dream came true when in Hartford, Connecticut, on December 11, 1844, Dr. Horace Wells, a member of the dental profession, having concluded that nitrous oxide gas breathed into the lungs would induce general harmless insensibility to pain, voluntarily tested this belief by inhaling in the presence of colleagues enough of that gas to cause temporary unconsciousness, whereupon by previous agreement Dr. Riggs by accustomed method extracted a molar tooth from the mouth of Dr. Wells, who

throughout the operation felt none of the usual sensations of pain, recovering completely from the effects of the anesthetic soon after the tooth had been removed; and

WHEREAS, In the spirit of exalted public service, Dr. Wells promptly thereafter gave to patients in his private practice the benefits of his method of inducing general anesthesia and also made freely and widely known this simple yet extraordinary means of pain prevention, thereby favoring universal extension of its beneficence and also facilitating improvement of its technique by numerous further tests, thus becoming one of the world's greatest benefactors; and

WHEREAS, The centenary of the first steps in the development of present-day methods of anesthesia—by the man who not only had the distinction to conceive a successful fundamental procedure but also the courage and unselfishness first to subject himself to all of its possible dangers—will soon be celebrated to express the abiding gratitude of mankind for the priceless blessing that Dr. Wells' endeavors initiated; now therefore be it

RESOLVED, That it would be appropriate for the Governor to designate December 11, 1944, as Horace Wells Anesthesia Day; and

BE IT FURTHER RESOLVED, That, in harmony with the public purpose of the said centennial celebration, there be repeated in the record of this Assembly the resolutions on Dr. Wells' historic discovery that were adopted by our predecessors in this Assembly in 1847 and 1853, to wit:

1847, May—“Whereas, it being understood by this Assembly that Doctor Horace Wells, of Hartford, discovered, in 1844, that nitrous oxyd gas, or the vapor of ether, inhaled by persons, causes insensibility to pain, in amputation or other surgical operations, which discovery has been most honorably noticed by various medical societies in London, and by the Academy of Medicine, and by the Parisian Medical Society in France, and has since been in use in England, France and in this country; therefore

“Resolved by this Assembly: That the aforesaid discovery, by Dr. Wells, of Hartford, Connecticut, of the use of *nitrous oxyd gas*, or *vapor of ether* in surgical operations, is of great importance to the public, and entitles the inventor to the favorable consideration of his fellow citizens, and to the high station of a public benefactor.”

1853, June—“Resolved, That the resolution adopted in 1847, attributing to Dr. Horace Wells the discovery of the principle of anaesthesia by inhalation of gases or vapors, are justified by subsequent developments.”

RESOLVED FURTHER, That this Assembly hereby reaffirms the foregoing resolutions not only as currently significant in general, but also as indicative of early understanding and appreciation throughout the State of Connecticut of the boon of practical general anesthesia that Dr. Wells gave to humanity.

RESOLUTION PASSED BY THE AMERICAN MEDICAL ASSOCIATION,
JUNE, 1944

WHEREAS, 1944 marks the centenary of the application of a practical method of anesthesia by nitrous oxide by Dr. Horace Wells of Hartford, Connecticut; therefore be it

RESOLVED, That the House of Delegates of the American Medical Association commends and endorses the celebration during 1944 of the centenary of this application of nitrous oxide anesthesia by Dr. Horace Wells of Hartford, Connecticut.

DENTAL DAY AT EXPOSITION¹
DENTISTRY'S CONTRIBUTION TO ANESTHESIA
DEDICATION OF WELLS AND MORTON TABLETS
P. G. PUTERBAUGH, D.D.S.

It is very appropriate on this occasion in the Century of Progress Exposition that dentistry should be accorded the privilege of publicly honoring two of its members who have rendered invaluable contributions to humanity. It is difficult to realize that less than ninety years ago the first system of abolishing pain was given to the world. I wonder how many people today know that both of the discoverers of the anesthetic properties of nitrous oxide, and of ether, were practicing dentists.

We were all impressed by the statement made by Mr. Dawes, President of the Exposition, at the opening of the Dental Congress on Monday that for 300,000 years mankind had been content to get along on the bare necessities of life; that nearly all of the modern conveniences have been developed within the last century. I need not recall of the meagre comforts of our immediate forefathers, but I would for the moment remind you of the hundreds of thousands of that earlier period who succumbed to disease and accidents, who could today, under the influence of anesthesia, be restored to health and happiness.

Since Horace Wells conceived the idea of performing surgical operations while patients slept under the influence of nitrous oxide, the study of anesthetics and refinement of their administration has paved the way for our present surgical methods. For the first time in the world's history it became possible, quickly and pleasantly, to waft the patient into unconsciousness by a few inhalations of an anesthetic, while the most delicate surgical manipulations were executed with exactness and precision. What a blessing to humanity!

¹Century of Progress International Exposition, Chicago, 1933-34.

While tonight we are honoring two dentists, it is not my intention to convey the impression that they alone have contributed to this important field, for many others of that period and since have added to its development. There is no doubt that Dr. Crawford W. Long of Georgia administered ether as a surgical anesthetic in 1842; or that Dr. Charles T. Jackson of Boston assisted Dr. Wells in manufacturing nitrous oxide and also suggested the use of ether to Dr. Morton.

Be that as it may, had it not been for the labors of Wells and Morton, the blessings of anesthesia might for many years have remained unknown. No one today can challenge the statement that to Horace Wells of Hartford, Connecticut, belongs the honor of first intentionally producing surgical anesthesia by means of nitrous oxide; and of attempting to establish, by a public demonstration, that system of inducing insensibility to pain.

To William T. G. Morton of Boston, Massachusetts, belongs the credit of being the first to introduce ether anesthesia and to make known the possibility of maintaining continuous anesthesia during surgical operations. And so, ladies and gentlemen, it is with no mean degree of pride that we here tonight, in conjunction with the largest assemblage of dentists ever held, do honor to two distinguished members of the dental profession who gave to the world the most beneficent gift that has ever been bestowed upon humanity—anesthesia.

In full appreciation of the invaluable service which these two confreres rendered toward the alleviation of suffering and the prolongation of human life, these tablets are respectfully dedicated.

HONORARY MEMBERSHIPS

1. Honorary M.D., the Paris Medical Society, 1847.
2. "Horace Wells was made an Honorary Member of the Faculty of Medicine of Paris in 1848, that is to say a few days after his death, as they were ignorant of the fact that he had committed suicide. The title was conferred on him with these words, "Wells est le novateur de l'anesthésie."²

MEMORIALS TO HORACE WELLS

1. Engraved Silver Plaque and Wreath. Presented by La Sociedad Odontologica Espanola a Horacio Wells, Madrid 14 Enero 1907, to the city of Hartford, Connecticut, U.S.A. Now in Library of Hartford Medical Society, Hartford, Connecticut.
2. Monument on which a Bust of Horace Wells is an integral part erected

²"Horace Wells," by Charles J. Wells: *Anesthesia and Analgesia*, July-August-September-October, 1935.

by French Dentists, March 6, 1910. Located in Place des Etats Unis, Paris, France.

3. Portrait Statute of Horace Wells given by the Citizens of Hartford, Connecticut, Paul Wayland Bartlett, Sculptor. Placed in Bushnell Park, Hartford, Connecticut, on July 22, 1875.

4. Bronze Memorial Tablet, 5' x 29". Attached to building standing on site where Dr. Horace Wells had first nitrous oxide anesthesia administered to himself. Presented by dentists of America at 50th Anniversary celebration, December 11, 1894.

5. Cemetery Monument to Horace Wells in Cedar Hill Cemetery, Hartford, Connecticut. Erected June 11, 1909.

6. Reproduction of a triple painting of the three dramatic events in the life of Dr. Horace Wells. Presented by Prof. Matas Luis Subirani of Madrid, Spain, to Hartford Medical Society, Hunt Memorial Building, 38 Prospect Street, Hartford, Connecticut.

7. Bronze Bust of Horace Wells given by the Dentists of America. Located in the Army Medical Library, 7th and B Streets, S. W. Washington, D. C.

8. Bronze Death Mask of Horace Wells. Located in Boston Medical Library, Boston, Massachusetts.

9. Bust of Horace Wells in official seal of the Hartford Medical Society of Hartford, Connecticut.

10. Memorial Window in memory of Horace Wells, and his wife Elizabeth Wales Wells in Center Church, Hartford, Connecticut. First seen by the congregation on Easter Sunday, 1903. Dr. Potter, the minister, spoke on Horace Wells at the Vesper Service on that day.

11. Replica of Bronze Bust of Horace Wells in the Army Medical Library of Washington placed in the Northwestern Dental School.

12. Carved pew-end as a tribute to Horace Wells. Chapel of Trinity College, unveiled on December 18, 1937.

13. Replica in Bronze of Death Mask of Horace Wells in the Horace Wells' collection, Dental Library and Museum, School of Dentistry, University of Pittsburgh.

14. Bronze Tablet to "Horace Wells, Dentist, Benefactor of Mankind" unveiled at the Century of Progress, International Exposition, Chicago, Illinois, 1933-1934, now mounted in the Museum of the Northwestern University, Dental School, Chicago.

15. Name inscribed on the Mace of the American College of Dentists as one of the Immortals of Dentistry. Names unveiled Sunday evening, July 16, 1939, at Milwaukee Convocation.

MEMORIALS TO BE ERECTED

1. The Vermont Dental Society will unveil on December 11, 1944, a bronze tablet marking the house in which Horace Wells was born in Hartford, Windsor County, Vermont.
2. The American Dental Association through its Horace Wells Centenary Committee will unveil a bronze tablet on the spot, 52 Spring Street, where Horace Wells' home stood in Hartford, Connecticut, during the celebration, December 11, 1944.
3. An appropriate marker is planned for the spot in New York City where Horace Wells had his office for a short time.
4. Plans are being made to present a bust of Horace Wells to the Smithsonian Institute.

WILLIAM T. G. MORTON

DENTIST
1819-1868FIRST TO DEMONSTRATE
PUBLICLY THE USEFULNESS
OF ETHER AS A SURGICAL
ANESTHETIC, OCTOBER 16, 1846ALREADY A PRACTICING DENTIST
DR. MORTON BEGAN EXPERIMENTING
WITH ETHER, IN 1844, WHILE A STUDENT
AT HARVARD MEDICAL SCHOOL.HE MADE SUCCESSFUL TRIALS WITH
ANIMALS AND, AFTER TAKING THE
ETHER HIMSELF, GAVE A PUBLIC
DEMONSTRATION AT THE
MASSACHUSETTS GENERAL HOSPITAL
THE VALUE OF ETHER FOR
THE RELIEF OF PAIN IN
SURGICAL AND DENTAL OPERATIONS
WAS THUS DEFINITELY
ESTABLISHED.

HORACE WELLS

DENTIST
1815-1848BENEFACTOR OF MANKIND
FIRST TO DEMONSTRATE THE
USEFULNESS OF NITROUS OXIDE GAS
AND EMPLOY IT FOR
DENTAL AND SURGICAL OPERATIONS
DECEMBER 11, 1844WHILE ATTENDING A PUBLIC LECTURE
ON "LAUGHING GAS," DR. WELLS
CONCEIVED THE IDEA OF USING IT
FOR SURGICAL ANESTHESIA AND
THE NEXT DAY HE GAVE A
DEMONSTRATION BY HAVING ONE
OF HIS OWN TEETH PAINLESSLY
EXTRACTED UNDER ITS INFLUENCETHESE PLAQUES NOW HANG IN THE MUSEUM OF THE DENTAL SCHOOL,
NORTHWESTERN UNIVERSITY, CHICAGO

A READING FROM THE *DE HUMANI CORPORIS FABRICA*
OF ANDREAS VESALIUS

J. B. DE C. M. SAUNDERS, M.B., Ch. B., F.R.C.S. (Ed.)

and

CHARLES DONALD O'MALLEY, M.A.¹

The four hundredth anniversary of the most significant year in the history of science should not be allowed to pass unmarked. The work of VESALIUS marks for all time the base from which the modern science of anatomy sprang and there are many who consider it for completeness of achievement the greatest single work of its century. ANDREAS VESALIUS OF BRUSSELS, born at the turn of the year 1514-1515, came of a long line of medical men and his father was Apothecary to the Emperor CHARLES V, whom the son was to serve later as personal physician. Educated at the Universities of Louvain and Paris, he early came under the influence of, and actively participated in, the Humanistic movement of the Renaissance, with which is associated the recovery of ancient learning and the revival of Medicine. A host of learned and able translators had made available purified texts of HIPPOCRATES, GALEN, ARISTOTLE and other medical authors. VESALIUS was one of these translators and edited several of the works of GALEN whose anatomical writings were accepted as completely authoritative.

VESALIUS was appointed a Professor at the University of Padua when but twenty-three years of age. Of unsubtle mind and fierce energy, he began to make anatomy the positive basis of medicine by approaching the subject directly and discarding ancient authoritative tradition. He seized every opportunity for personal dissection of the human body; frequented the graveyard, robbed the gallows, importuned the magistrates and even concealed cadavers beneath his bed.

From his investigations he rapidly perceived that the anatomy of

¹Saunders is Professor of Anatomy and Chairman of the Division of Medical History and Bibliography, University of California Medical School, San Francisco, and O'Malley is Research Associate in the same Division.

Galen not only teemed with errors, but was based on the appearances of the Barbary ape. With the same restless energy he plunged into writing his master work, an enormous folio, "On the Fabric of the Human Body," which was published in the year 1543, when VESALIUS was but twenty-eight years of age. Its publication constitutes the first presentation of systematic new knowledge won by the observational method and marks the beginning of modern biology and medicine.

The appearance of VESALIUS' great work attacking the authority of GALEN, "Prince of Physicians," led to a storm of protest from the traditionalists. Headed by his former master, SYLVIUS of Paris, they decried him on every hand. VESALIUS, in disgust and anger, resigned his University appointment and sought a position at the court of CHARLES V, where his great talents were forever buried. On the retirement of CHARLES, he served his son, PHILIP II.

In 1564, it is said that while carrying out an autopsy on the body of a young noblewoman, the heart was seen to contract under the stimulus of his manipulations. He was promptly accused of vivisectioning man and compelled to make a pilgrimage to Palestine. On his homeward journey he was shipwrecked and died on the island of Zante in the Mediterranean.

The chapter on the teeth from this monumental folio is by no means the most brilliant example of his writings either in originality or in displaying the genius of his observational method. But it should not be without interest to the dental profession and will serve to remind us how long and hard has been the uphill road to the establishment of the modern scientific method.

The year 1543 signalizes for all men of science the natal day, the Magna Carta, of their modernity and freedom of ideas:² "Men's genius lives, all else will perish."—THE TRANSLATORS.³

²The pagination and signatures of the *editio princeps*, Basle, 1543, is given in the margin; a double line indicating the approximate end of a page.

³Saunders and O'Malley are translating the *Fabrica* at the present moment. They have completed the translation of two other works of the series, the venesection letter and the letter on the China Root, which is to be issued this year.

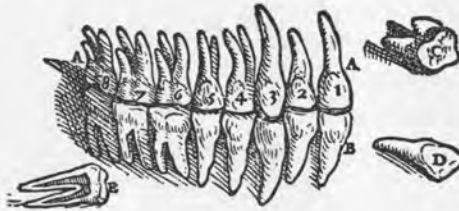
p. 45, D₅^R*De Humani Corporis Fabrica, Liber I*

ON THE TEETH

which are also included in the number of the bones

CHAPTER XI

DE HUMANI CORPORIS FABRICA LIBER I.
 DE DENTIBVS, QUI ETIAM
 ossium numero ascribuntur. Caput XI.



AN EXPLANATION OF THE ILLUSTRATION OF THIS ELEVENTH CHAPTER
 AND AN INDEX TO THE LETTERING.

In this figure the teeth of the upper and lower jaw are illustrated on one side. Since the arrangement is the same on both, it is sufficient to delineate the teeth extracted from the jaws of but one side. If one desires to examine the teeth while still imbedded in the jaws, the figures of the previous chapter show the lower series, and the third and fifth figure of the sixth chapter, the upper. The fourth figure of the latter chapter illustrates clearly the alveoli in which the teeth are fastened. We have carefully extracted the teeth of the upper jaw of the skull delineated in that figure:

- AA. The eight upper teeth of the right side.
 BB. The eight lower teeth of the right side.
 1, 2 The two right incisors.
 3 The right canine tooth.
 4, 5, 6 The five right molars.
 7, 8 I have taken the liberty of applying this number to both the lower and upper group of teeth. However the names of the teeth together with the various nomenclatures of the other bones will be taken up at the end of this book because I have decided that whatever I have employed up to now, these names ought to be reconsidered in that place.
- C. Indicates the crown of a molar tooth.
 D. The cusp of an incisor tooth.
 E. The central part of a molar tooth is here delineated showing the cavity observable in the teeth.

That the teeth possess sensation

Several places in the 5th book of the *de Medicamentorum compositione*

GALEN attests, and not superficially, that of all the bones the teeth alone possess the power of sensation. He also asserts that having been troubled by toothache, he had then assiduously employed his mind as to whether the teeth themselves give rise to pain and had felt clearly that the tooth not only causes pain but also pulsates like flesh attacked by an inflammation.

We believe that only the teeth among the bones are given the perceptible faculty of sensation by certain small soft nerves, propagated by the third pair of cranial nerves [Trigeminal N.], and implanted at their roots. On the other hand some, by no means agreeing with GALEN, consider the tooth since it is bone, unaffected by pain. What however are we to infer when we cut away the excesses of the teeth with a file or even more so when at times we cauterise them with hot irons? Since in such manual procedures we thereupon discover them equipped with sensation and we recognise that they are particularly affected by cold, the Almighty Artificer of things deservedly is to be praised whom, we believe, liberally bestowed the noteworthy faculty of sensation on the teeth alone among the rest of the bones. For He knew that they will frequently encounter objects which might cut, break or scratch them, unduly heat or chill them, or affect them in some other way. To all of these the teeth, in contrast to the rest of the bones are nakedly exposed. Consequently had they no power of sensation, man would not be warned by pain and would not protect the tooth by avoiding the injurious agent before the threatened teeth are damaged.

The differences between the teeth and the rest of the bones

The teeth are believed to be distinguished from other bones not only by their sensibility and because they are naked but also because they are always more richly nourished than the rest of the bones. And as teeth opposed to those which we extract immediately thereafter grow out beyond the remaining series into the position of the extracted tooth, we are therefore firmly convinced that they exhibit growth at any time of life. This is owing to the fact that they are no longer worn out by the

opposite teeth. For the rest of the teeth increase as much as they are diminished in the chewing of food.

There are usually thirty-two teeth in all, a single series of sixteen in each jaw, most fittingly placed in the form of a semi-circle. The first four or front teeth, because they cut, are called incisors. They are broad and sharp so that they may, on biting, easily sever and divide like a knife the food offered to them.// Then come the canines placed singly on either side. They are broad at their base nearest the gums but are sharp at the extremity furthest from the gums, so that if anything owing to its hardness is not torn apart by the incisors, they may break it in two. They receive their name because of their resemblance to the out-thrust teeth of dogs (whose canines are prominent). After them are the *maxillares* or molars, five on each side, rough, broad, hard and large by means of which food cut by the incisors and broken up by the canines, can be ground to perfect smoothness. If indeed, the molars were made smooth, they would be entirely unsuitable for their proper office, as all things are better ground by inequalities and roughness. It is for this reason that we see mill-stones used in the grinding of grain, when reduced to smoothness by prolonged use, recut and roughened afresh. If they were rough but not hard, they would be still more unsuitable as they would wear out before they ground the food to smoothness; hence the teeth are the hardest of all bones. Furthermore if made rough and hard and if not at the same time broad, such teeth would be no more suitable for the office entrusted to them inasmuch as what they must grind must be secured on a broad base. Thus the incisors and canines grind not at all because of their restricted and narrow edge. What if the molars possessed all these qualities but were at the same time small, surely their usefulness would be destroyed by this alone, since we would require too long a time for the attrition and grinding of food.

The number of the teeth

The incisors

p. 46, D5^v

The canines

The molars

How the
teeth are
fixed in
the jaws

All the individual teeth are fixed like pegs into the sockets of the jaws which because of their resemblance to the mangers of animals are called *pharva* by the Greeks and *praesepiola* in Latin. These sockets surround each tooth, binding and holding them so accurately that they may not be moved easily nor at all. Nor are all of them inserted into their sockets by the same number of roots since the smaller possess a single root, the larger two and the largest three or four. The incisors are inserted by single roots. The canines also require single roots which are inserted much deeper than the roots of the incisors and are larger by as much as the canines exceed them in strength. Among the incisors, the two in the middle are attached by more significant roots than the two lateral nearest the canines, undoubtedly because those in the middle are wider and larger. The molars vary among themselves with respect to their roots, for those inserted in the lower jaw are embedded by two roots and those in the upper constantly by three. They differ however in that sometimes those which are above are found to be embedded by four roots and those below, especially the two teeth farthest back, by three. Then you will very often observe that the two upper molars following the canine [pre-molars] are inserted by two roots only, the remaining three by three; likewise the two lower molars nearest the canine [premolars] by a single root, the remaining three by two. Furthermore you will also observe that those farthest back of all [third molars] are imbedded by smaller roots than those contiguous to them.

The roots
of the teeth

The number
of teeth
sometimes
varies

The number of incisors and canines rarely, in contrast to the molars, changes in man. For sometimes there are five molars on either side, sometimes four; sometimes four on the left and five on the right; or the opposite, five on the left and four on the right; or four below but five above.

The *genuini*

The hindmost teeth, which most people call the *genuini*³

³Literally the cheek teeth, derived from *genae*, the cheeks, and the term commonly employed in former times for the third molar, although CICERO and many others so called both molars and premolars.

even if CICERO so called the molars, chiefly provide the following difference. They are the teeth which first erupt after puberty and sexual maturity and thereupon afflict men with the greatest tortures. Physicians paying little attention to this, extract other teeth or persuading themselves that the teeth are attacked by vitiated humours, burden the sick with pills and suchlike remedies, although no more effective cure can be offered to the sufferer than light scarification of the gums over the last tooth and sometimes drilling of the bone. I myself recently suffered such an experience while writing this, at the age of twenty-six my thirty-second tooth is erupting. Many of the skulls met with in cemeteries also prove this fact. For in them the aforesaid posterior teeth are still lying or are hidden in a sort of cavity, perforating the thin bone of their base by one or other of their cusps. My very dear friend JOANNES PAULUS GUIDUCIUS of Urbino, a very skillful young man and so very studious of man's structure, recently showed me just such a skull. Moreover, ARISTOTLE and many others ascribe a greater number of teeth to men than to women. Since no one is prohibited from counting the teeth, it is obvious that it is as easy for anyone to test this assertion as it is for me to say that it is false. Many even contend that they can tell the length or shortness of one's life from their number.⁴

The teeth not only fulfill the previously mentioned uses but they also aid in the modulation of the voice⁵ as they are formed

⁴ARISTOTLE in his *Historia animalium* says: "Males have more teeth than females in the case of men, sheep, goats and swine; in the case of other animals observations have not yet been made; but the more teeth they have the more long-lived are they, as a rule, while those are short-lived in proportion that have fewer in number and thinly set." (*The works of Aristotle*, ed. by J. A. Smith and W. D. Ross, Oxford 1910, vol. IV, Bk. II:3:501^b. *Historia animalium*, tr. by D'Arcy Wentworth Thompson.) Cf. PLINY, Lib. XI, 114.

⁵VESALIUS is paraphrasing ARISTOTLE to some extent in his discussion of the function of the teeth. Cf. "For the front teeth of man contribute in many ways to the formation of letter-sounds." (*De partibus animalium* (ibid, Oxford, 1911, vol. V, Bk. III:1:661^b, tr. by W. Ogle) GALEN (*de ossibus*) believed that the teeth were solid and VESALIUS's discovery of the pulp cavity is one of the many points which enabled him to break from the traditional anatomy.

The cavities
of the teeth

of a hard and stony substance having minute but significant cavities within. These cavities are for the purpose of lightening the teeth and that they may receive nourishment more adequately. Because of them, whenever holes appear in the teeth from the influx of sharp and eroding humours which extend to the cavity, the teeth are very rapidly eaten into right down to the tip of the root.

The appen-
dices of
the teeth

p. 47, D6^R

Then it must not be overlooked that the teeth of children are formed with imperfect, soft and sort of marrowy roots in such a way that the portion of their teeth seen outside the gums is connected like an appendix [epiphysis]⁶ to the root of the tooth. Indeed we learnt this as boys when we were in the habit of extracting loosened teeth, especially the incisors, for ourselves or our companions // by encircling the tooth with the tips of the fingers or with a thread. Indeed we may also observe at any time in mules and in many dogs that their appendices [epiphyses] fall out, the roots of the teeth remaining behind. And finally this must be borne in mind most carefully lest in children we ever dig out the remaining portion of some tooth broken accidentally, and not merely the appendix [epiphysis] in place of which (if the root be saved) another tooth will promptly grow up. This is also frequently forced on one's attention in children in whom as they grow older the molar teeth generally become eroded and defective. For in these children it is worth while to remove the appendices [epiphyses] of the molar teeth (which, unlike the incisors, do not generally fall out of their own accord) so that new ones may take their place and the teeth be preserved complete. As the union of the appendices [epiphyses] is strengthened with advancing age, the appendix [epiphysis] never falls out, consequently several teeth have frequently to be extracted with their roots, because of caries [erosionis vitium], at the time of puberty.

⁶VESALIUS fails to recognize a primary and secondary dentition as such. He regards the primary as analogous to the epiphyses of bones. These epiphyses, he believes, like those of the bone, fuse with the root as the individual grows older but may be shed, a new one presumably taking its place in the formation of the secondary tooth.

AMERICAN COLLEGE OF DENTISTS

SOCIO-ECONOMICS¹

GEORGE W. WILSON, B.S., D.D.S., *Chairman*²
Milwaukee, Wis.

The Committee set as its objective for the year a program of activity designed to cooperate with agencies of the American Dental Association by gathering information and opinions on several socio-economic problems which confront the dental profession.

This report is essentially a summary report on the outcome of a mail symposium by members of the Committee and a consultant group of fellows of the College. It is a summation on several leading questions which were raised by Drs. Meisel and Black in their president and president-elect address at the St. Louis meeting of the Regents.

Summary of replies on:

A. DENTISTRY AS A PROFESSION.

1. *What designates dentistry as a profession rather than a trade?*

A profession is built on a broad foundation of education and learning which qualifies one to profess to understand the theory and practice of dentistry.

The objective of the profession of dentistry is to help to preserve and restore the physical well-being of the human family.

The Rockefeller Foundation Review states:

"Although America leads the world in dentistry, it is a leadership based upon ingenuity of a mechanical sort, rather than upon the amount or character of research done on the anatomy, pathology, or physiology of the oral cavity. Almost no dentists are trained in such a way that they can do research of a quality comparable to the research in medical schools on medical and surgical problems. Until our dental schools are brought more closely into line with our medical schools, much of the mechanical brilliance

¹Report of Socio-Economics Committee, presented at Cincinnati Meeting of Regents, Oct. 1943.

²The other members of this Committee are (1942-43): E. H. Bruening, W. H. Mork, B. B. Palmer, K. C. Pruden, M. W. Prince, C. E. Rudolph, Maurice William.

of American dentists will remain that and nothing more, and the essential curative and preventive measures will go unstudied."

A definition of a profession which seems to be more comprehensive is one stated by Justice Brandeis, who wrote:

"First, a profession is an occupation for which the necessary preliminary training is intellectual in character, involving knowledge, and to some extent learning, as distinguished from mere skill.

"Second, it is an occupation which is pursued largely for others and not merely for one's self.

"Third, it is an occupation in which the amount of financial return is not the accepted measure of success."

Horner, in "Dentistry as a Professional Career," states:

"Many national professional and business organizations adopt and publish Codes of Ethics. Some of these codes are faithfully observed and some are mere counsels of perfection. The Code of Ethics of the American Dental Association undertakes in realistic terms to record the professional conduct it expects of all of its members.

"It would be too much to claim that every one of the 50,000 members of the Association lives up day by day to the literal prescriptions of the Code. It can be urged, however, that the Code expresses the ideals of the profession and that its observance is maintained at a remarkably high level. The high school pupil or college student interested in the professional possibilities of dentistry will find no better or more trustworthy means of appraising the professional level dentistry has attained in this country, than by a careful perusal of the Code."

2. *What is the present status of dentistry?*

The present status is transitional. Dentistry is still regarded as a profession in which individualized personal relationship exists between patient and dentist. It is, however, being socialized and brought under public control and supervision as evidenced by the growth of dental clinics for examination, advice and correction; public school dental clinics and dental clinics in industry, etc.

The present status of dentistry is one of tolerance and partial acceptance in the family of social organizations. No one can deny the strides made in the last quarter century, while the progress achieved in the past hundred years is remarkable. Progress toward a better place in the social fabric is undoubtedly hampered by dentistry's apathetic attitude toward her opportunity and her perpetual

failure to recognize and discharge her obligations in this field. The widespread publicity given to the importance of dental attention by our military services may force dentistry to develop a plan to provide for a greater demand in the post bellum era. The status of dentistry may rise or fall as she succeeds or fails to cope intelligently with the social problems of the relatively near future.

The advances in medical knowledge made by dentists and the greater care exercised in relation to the general health of their patients have raised dentistry measurably in the regard of the medical profession. Some medical practitioners recognize and welcome dentists as professional confreres; some tolerate them, and others disdain them as mere mechanics. Much remains to be accomplished before the status of dentistry may be considered to be satisfactory.

Among scientific groups the achievements made by dentistry are recognized, but the number of such is not large. Dentists as individuals do not participate in the activities of scientific bodies, nor do they command respect as scientific workers.

Among cultural and educational groups dentists fail to achieve standing of any particular merit.

The reputation of the modern dentist by the general public is a patchwork of many contradictory conceptions. He is coming to be widely regarded as a professional man, definite advances having been made from the "tooth carpenter" era of a few years ago. He is regarded by many as a special type of merchant whose prices generally are too high, and whose chief concern is his income. His reputation as a member of a group dispensing or dealing primarily in health service is not sufficiently broad. Among themselves dentists do not accord one another a very high measure of respect, and it is doubtful if they regard the status of dentistry as being very high.

3. *What are the trends today, regarding the status of dentistry?*

While the present status of dentistry may be assayed as being fairly satisfactory, there are signs that dentistry stands at a cross-roads, leading either to further progress and greater advancement, and to a higher place among the cultured groups, or backward to a lower place in the scale. The direction in which dentistry will go

depends upon the intelligence, the vision, sincerity, energy and indefatigable efforts of the leaders she develops in the several fields of organization, education and literature.

B. DENTAL EDUCATION.

1. *Its history—present requirements—trends.*

Institutional dental education, begun in 1840, has developed gradually in accord with scientific discoveries, health needs, and professional insight, and is now the basis—in dental schools in universities—of the continuing autonomous evolution of dentistry as a natural division of health service. Meanwhile dental practice, by an independent profession in this country, has steadily grown more proficient and serviceable. Now, dentistry is next to the largest health-service profession in the United States, having a much larger number of practitioners than those of all specialties of medical practice combined.

In this evolution, dentistry has become the service equivalent of an oral specialty of medical practice. The relative, chemical inactivity of the hard tissues of erupted teeth, and the predominantly mechanical nature of their treatment, and the unique requirements of dental practice account for the separate professional status of dentistry.

Since 1840 there have been recurrent suggestions that a portion of dentistry should be converted into a specialty of medical practice and the chief mechanical phases of dentistry reserved for one or more auxiliary groups. In recent years it has been proposed that such partition of dental service—directly for the patient—be made analogous to the division of ocular health-care among ophthalmologists, optometrists and opticians. The Harvard School of Dental Medicine was announced in 1941 to replace the Harvard Dental School, which would be discontinued in 1944, in its 77th year. In a recent public address, the President of Harvard University stated frankly that the School of Dental Medicine “has not been successful”; “a reorganized plan” is now being tried.

Under the guidance of Councils on Dental Education (since 1909); of associations of dental teachers and faculties (since 1884);

and under the influence of recurrent commendable self-criticism in dental faculties, continual improvements, such as more effective instruction in, and clinical application of, the basic ("medical") sciences, are keeping dental education in accord with increasing requirements. The needs of dental education in individual schools are similar to those of other types of professional education; e.g., more abundant resources, larger numbers of highly competent and inspiring whole-time teachers, greater activity and productivity in research, more effective libraries, improved facilities for graduate work, etc.

It would appear that the present and future requirements of dental education may be found:

- (a) In improved methods of selection of faculties and students;
- (b) In the right of self-determination in matters of educational policy;
- (c) In a determination that dental education shall seek to prepare the student for a place in the general field of health sciences, in a "shoulder to shoulder" relationship with the other sciences as medicine, pharmacy, nursing, social science and public health, and not as an appendage of any one of them;
- (d) In the development of research;
- (e) In a change in the attitude of many universities toward their colleges of dentistry culminating in better financial support and demanding standards of their dental faculty equal to other colleges in the university.

A brief outline of eras and objectives in the practice of dentistry and of educational requirements, may be of use in establishing a curve that can be projected into the future:

First objective—Relief of pain—none other than a strong right arm;

Second objective — Restoration of lost parts — apprenticeship methods of education to learn arts and crafts;

Third objective — Elimination of infection (focal infection period)—knowledge of pathology, bacteriology, physiology, etc. (about this time we expanded our course to four years);

Fourth objective—Control of dental disease (we are probably completing this phase)—a knowledge of etiology, mechanism of disease, beginnings of biological research;

Fifth objective—Prevention of dental disease (we will probably witness and even take part in the transition into this phase)—broadening our research programs—improved understanding by our students of the basic biological sciences and development of public health thinking in our dental schools.

2. Pre-dental, undergraduate, post-graduate; are revisions in our present system desirable?

Generally speaking, revision is desirable for we should always be changing to meet new conditions and preparing for future changes. It is beyond dispute that the future holds many changes in dental educational procedures.

There will be a sharp upswing in the number of students seeking admission to dental schools:

- (a) Men now in service will wish to complete and qualify their education;
- (b) Increased requirements for dental service;
- (c) Shortage of dentists.

I. Pre-dental.

Would hope for liberalization of the pre-dental program with less rigid prescription of course.

II. Post-graduate.

Following is a suggested outline of studies, after graduation:

- (a) Refresher courses:
 - 1. No credit or certificate;
 - 2. Objective: To keep the dentist up-to-date;
 - 3. Administered by the College of Dentistry.
- (b) Post-graduate courses:
 - 1. One or two academic terms;
 - 2. Credit leading to a certificate of completion (proficiency);
 - 3. Objective: To prepare for specialization;
 - 4. Administered by the College of Dentistry.

(c) Graduate courses:

1. Credit leading to M.S. degree;
2. Objective: To prepare qualified men in the field of research and teaching;
3. Administered by the Graduate Division of the University.

3. *What are the costs of a dental education? Can they be reduced?*

There are numbers of estimates of actual costs of dental education such as the various college announcements, "Dentistry as a Professional Career," etc. The answer to this question should be sought objectively, for costs have a wide range, from \$800 to \$1,200 per academic year, depending upon the location of the school, cost of living conditions, economical status of the student.

It is possible the total over-all costs will increase, although certain savings can be made through acceleration of the program, reduction of instrument lists, and better selection of students, thus reducing the number of failures, and repeats. However, these will not effect a material reduction. The increase in costs will come through the expansion of the so-called "non-income" activities of the dental school. Proportionately more time will be spent in research. Reduction of clinical hours and consequent reduction of clinic income will throw general financial costs to students, endowment or general University funds. Cost to individuals may be reduced if students are subsidized, but some one or some group will have to meet the total over-all costs.

4. *What standards should be established in the selection of dental students?*

There is at present too great a tendency to emphasize the importance of rating the prospective student's abilities and qualifications with little attention to his capacity for development. Last year at the American Association of Dental Schools, these were summed up to read like a want ad: "Wanted, a young man, must be intelligent, industrious, of good moral character, neat in appearance and in good health. Some financial backing is desirable if the position is to be permanent."⁴

After all, these are the qualities desired regardless of whether it

is the selection of an errand boy or a young man to study dentistry. They are qualities that are fairly easy to determine. But, we must go further than this in the selection of dental students. We should be interested in his *capacity for development*. An errand boy can remain an errand boy, but a dental student must become a recent dental graduate who in turn must become a qualified practitioner, a teacher, a responsible citizen and a professional man anxious to advance the frontiers of knowledge in his profession and health in his community.

The selection of students with desirable qualities can be and is being accomplished. What is yet to be accomplished is the organization of dental faculties interested in developing the above capacities to the limit of each student's potential development and steering students with a low potential development into other channels.

The selection of students will be aided considerably by:

- (a) Increased number of applicants from among whom students with the most desirable qualities can be selected;
- (b) Freedom of the schools from financial pressure;
- (c) Insistence of universities that dental school faculties meet the standards of other college faculties.

C. DENTAL LAWS.

1. *Functions, past and present, effectiveness possibilities and trends.*

As dentistry became organized it was realized that individuals and minority groups who lacked proper ethical concepts held themselves apart from their fellows and could not be influenced or controlled through the dental societies. Their unscrupulous practices, however, were detrimental to the good name and reputation of the ethical elements of the profession. What more natural, then, than to turn to the lawmakers and with the influence of numbers and united purpose, to secure the enactment of laws designed to force these few recalcitrants to abide by the standards of behaviour accepted by the majority. As the power of organized influence on the politicians and the success of regulation by law became recognized, the scope of dental laws increased to include the requirement

of licensure and stipulated the educational requirements necessary. The laws were changed to deal with abuses as fast as they became apparent and they sought to protect the profession against incursion by unqualified persons and the public against injury and malpractice at the same time.

2. *State laws for dentists; do they protect the status and standards of dentistry?*

The dental laws were all matters of state regulation and were at great variance in the different states. The states which were oldest in experience and where the organized dental groups were most active and aggressive soon had the best dental laws. However, through the contacts of state societies within the American Dental Association and other national dental groups, a fine brand of cooperation soon gave the backward states the benefit of the experiences of the others. At present there is relatively little difference in the statutes of the different states, and the state laws are quite effectively protecting the status and standards of the profession.

Of course we cannot "rest on our oars" as the unscrupulous elements are always finding new loopholes, new money making evasions and are constantly beseeching the politicians to repeal onerous sections of the existing laws for their selfish benefit.

In recent years it has been necessary to resort to Federal law and regulation to cope with some dental groups who used the mails to operate in distant states, with an unscrupulous brand of advertising and instruction in self service, commonly called "mail order dentistry."

3. *Certification of Specialists.*

One of the most glaring abuses in the present day practice of dentistry has to do with specialists. Attracted by higher fees paid to men of experience and exceptional ability in a limited field, many poorly qualified dentists are assuming the title and charging the fees without even limiting their field to the "specialty" claimed. In one state (Illinois) a law has been enacted which requires that a dentist, before he can call himself a specialist, must be certified by a legally established Board of Investigation and Examination to have

the special skills assumed in the title and also to limit himself exclusively to the special field or branch in which he is a certified "Specialist." Other states will doubtless follow as the public is entitled to the knowledge that the so-called specialist is in fact a well qualified expert in the limited field in which he chooses to concentrate his efforts.

4. *The possible effects of regimentation upon the dental laws of the several states.*

There has been much speculation as to how the state laws governing dentistry would be affected should a Federal Social Security Law seek to regiment dentists. This would, of course, depend on the exact content of the federal statute.

If, for instance, the Federal Government should employ dentists on a salary and send them into states, where they had no license, to practice on the general public, it would clearly be an invasion of state's rights. However, in recent years a grasping and bureaucratic central government has been invading state's rights in many fields and getting away with it. What would happen to our state laws governing dentistry would depend in the long run on whether the federal "regimentation" system gave the public a better and broader dental service. The dental profession is entitled to legal protection only to the extent that it is enabled to fulfill its function of service to the public. So far, this has been accomplished through the idealism and enthusiasm of its individual members working together in voluntary association and cooperation with the incentive of reasonable financial reward and social satisfaction. It is doubtful whether any central government can impose a better system.

D. DENTAL PRACTICE.

1. *Is the supply of dentists sufficient to provide for dental needs? How can the supply be best utilized?*

The present supply of dentists is controlled largely by the demand for dental service under a system of private practice. Accepting the figures of the committee on the cost of medical care that dental man power provides 20 per cent of the population with adequate service and the other 80 per cent with emergency service

only, the answer to the question "Is the supply of dentists sufficient to provide for dental needs" is, No.

It is estimated that if all initial dental needs were taken care of it would require at least 115,000 dentists to supply adequate maintenance care. The present supply can best be utilized by increasing the efficiency of dentists through more general use of hygienists, technicians, and assistants, better planned offices with multiple operating rooms and modern equipment.

2. *What is the economic status of the dentist under present practice methods?*

The most reliable answer to this question may be found in the report of the Research Staff of the Committee on the Study of Dental Practice of the American Dental Association under the title: "The Practice of Dentistry and the Incomes of Dentists in Twenty States" (published by the University of Chicago Press, 1929). The present practice methods have not been materially changed since that time, except for the second world war emergency, and there are no available figures on changes that have taken place during this period.

3. *What should be expected of the dentist under present private practice methods? Under regimentation?*

The dentist as an individual is just another human being with all the emotions and aspirations common to mankind. The secret ambition of every student who has chosen dentistry for his profession is to become financially independent, socially respected, and able to enjoy the good things in life. In order to reach the goal, he knows he must do his work well. There is nothing wrong about that. The activities of organized dentistry have tended in the same direction. The code of behaviour by members within the profession is laid down and controlled by legislative acts for its own protection and that of the public. The educational advance during the past century from the apprenticeship type of training to our present dental curriculum is a long step. The contribution of American dentistry to the arts and sciences in its field has attracted the attention of the whole of civilized society. From early colonial days American dentistry has

held the spotlight of the rest of the world. All this has been achieved in a democratic society under the present private practice system. With such an excellent record, why bring in the scarecrow of *regimentation*? It is a word that does not belong in the vocabulary of a democratic people. Regimentation is something nobody wants and it is brought about by misuse of special privileges or failure to fulfill social needs. History books are filled with examples of this kind. Let us mention but one. What happened in the church when the priesthood forgot its obligation as social servants and concentrated on the dignity of the profession and its social privileges? When this concentration was carried to a saturation point, the wrath of society became so vehement that for a time it seemed to blot out all religion. It did not destroy religion but it hurt the church, at least temporarily. We could quote examples of this kind by the dozen, but this will suffice to illustrate the point.

American dentistry has not been unmindful of its obligation as a social health service. This fact is evidenced by the numerous surveys of the dental health condition of the public and the several proposals as to how we may meet them. This is a very healthy sign. I have faith in the intelligence and resourcefulness of the average American dentist, but he must have social-minded leadership. Let us, at least for the time being, forget about professional dignity and special privileges and roll up our sleeves and go to work. The need is crying, and the social demand for dental health service cannot be shoved aside by the excuse of shortage of manpower. If it becomes necessary in meeting this demand to engage non-professional help for limited services, let it be done under the guidance, supervision, and approval of the dental profession. This will prevent dentistry from falling into the hands of the politicians. If "regimentation" becomes unavoidable, let it come from within, not from without the dental profession.

E. ECONOMICS WITH PARTICULAR EMPHASIS ON HEALTH SERVICE.

1. *How essential is dental health service to the national health?*

Dental health service is essential to the national health. It is difficult to evaluate its degree of importance, but the relationship

between general health and dental health has become axiomatic in the health field. Dental health service is a vital and essential service in any health program since it is a necessity to national health. No health service is complete without it.

There are no available figures showing just how great the necessity is for oral health. Draft board rejections, delinquencies in schools, and time lost in industrial plants certainly prove that oral health cannot be overlooked with impunity in our economic set-up. These studies suggested above can be analyzed and the proper emphasis placed. The amount of emphasis would probably vary with the point of view of the analyst, be hard to find an individual properly trained who could look at the subject wholly objectively.

2. *How can dental service be made available to all under present methods of distribution?*

It is impossible to make dental service available to all under present methods of distribution. With the nation's normal complement of dentists serving a peace time civilian population, less than 25 per cent of that population secured dental care. War time conditions have reduced the number of available dentists and consequently have kept the individual practitioner who is caring for a civilian practice busier than ever in caring for a smaller portion of the population. Economics, education, and available time combine to eliminate the possibility of the present system producing dental care for all.

The possibility of the organization of the profession to render such service to all, particularly the low income group, has been under discussion for many years. Such organization, without outside aid, is doubtful, if not impossible.

This subject opens all the avenues in dental dispensation methods. No set system for all economic and social levels has been tried in this country. *Theoretically the U.S.A. contains a large proportion of people in an economic level who cannot afford to buy dental services as they are now dispensed.* If that is the condition then the only possible method to make available to all people the services of dentists would be through some form of subsidization either by

government or some other agency. The methods of dispensation if availability and economy were to be stressed, would be varied. The slightly populated vast rural areas cannot be dealt with in the same manner as the densely populated urban areas. The same standard of service must be made available to all. Traveling units must be used in some places, compact clinics may be used in others. The *modus operandi* of making services available is a complicated question which can only be discussed at great length. Services as suggested above cannot be purchased according to present dental expenditures. If the masses are to get such services, someone must play Santa Claus.

3. *How can dental service be made available with outside assistance?*

This is the most complex subject confronting organized dentistry, government and welfare agencies. It is their mutual problem. So far no practical program has been formulated by any of these three groups. Children's dentistry programs have been offered as the logical starting point. Various health insurance programs have been studied and have been discarded, one by one. A cooperative effort on a voluntary basis with participation by employer and employee has been attempted without success.

Private philanthropy in the past has been invited to support various dental projects by the profession's leaders. With several notable exceptions, such support has not been made available. It has been provided for the study and elimination of the more dramatic diseases than caries and diseases of the mouth. Speakers at dental meetings in New York City, during the past ten years, have presented several plans for the provision of dental care for children. Approval of one such plan (the Trier Plan) not only is on the record, but it was widely publicized in newspapers, lay magazines and professional journals. It was laid before the health authorities of the city, the state and the nation. No cooperation or positive action was forthcoming from any of these sources. Other plans have been presented for the care of the indigent or semi-indigent. None of these were deemed practical although several received the "Kiss of Death" by being approved "in principle."

Various sociologists, health writers, and others with non-dental background in advocating various plans seem to regard dental disease as one that can be cured by a miraculous serum. Perhaps one day caries will be so treated. In the meantime, a program calling for the provision of minimum standards of good sound dental care, together with a program of prevention for children is needed. Before such a program can be established the necessary financial assistance is also needed.

The responsibility for the provision of dental care to all is a divided one. The profession, by its record shows that it stands ready to cooperate with the government. Despite this fact, non-dental writers, usually men in administrative positions, accuse the profession of "charging too much money for their services," and of "blocking constructive planning by a negative attitude." The concern felt by the profession over dental neglect and the inability of the masses to obtain adequate dental care is a sincere one. If some elements within the profession are opposed to any form of health insurance that is their privilege as citizens. The rest of us, similarly, have the right to offer to cooperate with the government in any reasonable effort to provide such care for those who need it. The provision of dental care for the needy does not mean that those rendering the service must be punished financially. Any such plan must provide the dentist with a fair standard of living. If the profession unites on this problem, the profession and its individual members will not suffer. But our present hit-or-miss system continues.

4. *Why doesn't our population purchase dental service today?*

Fear, economics, lack of education, and the disagreeable nature of the service itself combine to prevent our population from purchasing dental services today.

Many opinions can be expressed when the question "Why does not our population purchase dental health service today?", is answered. The basic reason is that the majority of our population disregards the necessity of continuous care for their bodies. Lack of knowledge or the ability of pay for such care does not answer the question, for there are many who possess both and make use of

neither. Continual education from the cradle to the grave will always be necessary.

F. DENTAL SERVICE.

1. *What are the needs for various types of dental service for different population and age groups?*

It is quite commonly agreed that not over 20 per cent to 25 per cent of our people have anything like adequate dental service. This is chiefly confined to the upper and middle class economic levels and includes only a small part of these. There are a few clinics for indigent children which give quite adequate dental service, but the number served is almost insignificant when compared with the whole child population.

Types of service for children are mostly fillings, extractions, cleanings, and orthodontia. For adult groups every type of service is given. There are a number of reports and studies which show need and in some cases types of service, but it would be impractical to try to summarize these for this report. Some of the most important are the following:

- (1) A Study of the Dental Needs of Adults in the United States, by the American Dental Association;
- (2) Report of the Committee on Public Dental Education, by the St. Louis Dental Society;
- (3) The Cost of Adequate Dental Care for Adults, by the Socio-Economics Committee of the American College of Dentists, Chas. E. Rudolph, Chairman;
- (4) The Cost of Dental Care Under Health Insurance, by the Chicago Dental Society, under direction of Peter T. Swanish;
- (5) Dental Survey of School Children, Public Health Bulletin 226 by the U. S. Public Health Service;
- (6) Dental Status and Dental Needs of Elementary School Children, by the U. S. Public Health Service, Report 53, popularly called the Hagerstown Study;
- (7) Annual Reports of the Murry & Leonie Guggenheim Dental Clinics, by John Oppie McCall, director, New York City;

(8) Health Dentistry for the Community, by the New York Tuberculosis and Health Association, New York City.

2. What can we do to prepare the youth of today for a better and more complete dental service? A well planned and intelligently executed educational program directed to American youth *and* to the many agencies serving him in his needs for the achievement of health and happiness will prove the best avenue by which youth can be given better and more complete health service. The close relationship between economic stature and dental care makes such a program entirely feasible. By education the dental profession should hope to do two things: (1) control dental disease by early and adequate dental care, and (2) prevent disease by the application of the principles of prevention. Early and adequate dental care, and prevention will cost less in the long run. Dentists and hygienists should be employed in the school systems to teach dental health to the child. This subject should be taught as an integral part of his education, the same as arithmetic, spelling, etc. It should be understood, however, that it is not enough to direct an educational program to youth alone. Every agency that contributes to his development must be acquainted with the contributions that the dental profession can make to him. Such groups as parents, school teachers, physicians, church groups and others that have constant contact with the child must be apprised.

3. *What constitutes adequate dental service for various population and age groups?*

The dictionary defines adequate as "reasonably sufficient," "equal or sufficient for some specific requirement." What is reasonably sufficient dental service? It might be defined as "dental service which meets the needs of health and occupation." Such dental service would include all necessary extractions, all savable teeth filled with plastic fillings (silver, amalgam, silicates, cement for bases or cavity linings), all necessary treatments including prophylaxis, partial or complete dentures where indicated, and orthodontia for children in extreme cases, where it is a health or mental hazard.

This would constitute adequate dentistry which meets the needs

of health and occupation for all classes and age groups. It includes the filling of pits and fissures, the removal and as far as dentistry is able, the prevention of infection. It should start with children at $2\frac{1}{2}$ or 3 years and include periodic examination with bite-wing and other x-rays as indicated. For the higher income brackets, more expensive dentistry, including more orthodontia, is desirable.

4. *What is our professional responsibility towards dental service for the masses?*

The responsibility of the dental profession to the masses must be thought of in terms of a broad ethical basis. The professional man should attempt to serve as many patients well as he can and still maintain his own health and happiness. He should strive at the same time to educate his patients in the advantages of adequate diet, oral hygiene, early and adequate dental care. People want to know these things; it is up to the profession to tell them. The profession should attempt continuously to interest young men in the study of dentistry, particularly those with broad educational backgrounds. It should develop plans for the care of the masses which will assure dental care for them as well as preserve or improve the tenets of the dental profession. The profession should think of its relationship to the American public as of greater ethical importance than the relationship of one dentist to another, or of a dentist to a patient.

5. *Is a dental service plan for all the people feasible?*

At present, the answer must be "no." Even though everyone was assured dental care tomorrow, many would not seek it, for several reasons which probably need not be mentioned here. In addition, as has been mentioned before, the dental man-power of America is today incapable of providing dental care for everyone.

6. *How can dental service for the low income and borderline group be best provided: (a) Under a private practice system? (b) Under group practice plans? (c) Under a clinic or health service plan?*

We can have group practice plans under either a private practice system or clinic or health service plan. Consequently, this report will attempt to answer only (a) and (c).

Where government through tax money provides dental health service for the indigent or low income groups, the private practice system is not to be desired. It would be too expensive, wasteful, and difficult to administer efficiently. Clinics by salaried dentists and assistants for this purpose under competent professional supervision are preferred.

For school children tax supported clinics for all who wish to avail themselves of the service without a means test and on the same basis as education, will serve well. The promotion of this plan would place dentistry in a favorable position with the public and do much to preserve the private practice of dentistry. The last figures available in Michigan upon costs of education vary from \$52.07 to \$109.92 per child, with an average of \$84.72 per year.

An addition of \$5 or less per child would furnish adequate dental service for properly supervised school clinics.

CONCLUSION

A specific plan for providing more complete dental service for the masses was offered by one of the members of the committee. However, since it is not the purpose of the College to offer any plan as such, it is not included in this summary. This report is an effort to offer a group of representative opinions and points of view on the various questions raised. It is an accumulation of information offered by men of varied experience in the social and economic problems of dentistry. It is a portrayal of what these contributors are thinking on problems which American dentistry must solve.

It is not an attempt to organize or set up plans. The American Dental Association will do that, with the liberal, unbiased help of cooperating groups, loyal to the welfare of the public and the dental profession.

EDITORIAL
ANNIVERSARIES

This is a year of anniversaries. It is the one hundredth anniversary of the introduction of nitrous oxide gas as an anesthetic agent into surgical practice whether dental or medical, although it was first used in dentistry for the extraction of a tooth. This is also the four hundredth anniversary of the beginning of a scientific knowledge of anatomy.

Nitrous Oxide, one of several, and the first inhalant anesthetic agent applied in the relief of pain in a surgical procedure, was introduced by Horace Wells, a dentist. The story of its introduction is well known and is well presented in the anniversary story in this issue of the JOURNAL. It only remains in this way to give emphasis to the fact of its first presentation by a dentist and of its first use in dentistry; to call attention to the paradoxical situation pertaining to anesthetic agents, in that this inhalant anesthetic was introduced by a dentist while cocaine, a local anesthetic agent or one applied by injection, was introduced by a physician, the former being used more extensively in medical practice while the latter is used mostly by dentists; and to give further emphasis to the statement of Claude Bernard that, "we do not go back into antiquity for new ideas, but rather to find out how men's minds operate."

In the field of anatomy Galen was the first known writer on the subject, but wholly inadequate and unreliable. Vesalius, 1543-44, presented a complete anatomy text in latin and which still stands almost without change. He is associated with this subject as is Harvey with physiology, Virchow with pathology and Pasteur with bacteriology. Outstanding eras or accomplishments are associated with great leaders and so it becomes our high privilege to give recognition to these two men and their labors in this, their anniversary year, one a first centennial and the other a fourth.

In all the years gone by it is clearly to be seen that men's minds did operate in a direction that carried their good works on down the pages of time so that later students have built on the foundations laid by them. This is evidence of the fact that a fruitful future depends upon a fruitful past.

In an old picture prized by Vesalius, is to be seen "the bard [with] his instrument in his hand." Around the sketch are the words, "*Invia virtuti nulla est via*"—"For the man of courage, no way is closed." Another group of words was among his favorites, "One lives for the spirit, all else belongs to Death."

LIFE AND LIBERTY

Considering all the definitions of "Life," or statements which may be made concerning it, it is a "constant challenge." We enter life with confidence and find a world both good and bad. We soon discover, too, that it is a sort of game from which none is exempt, but in which one may find defeat or victory dependent upon whether he tries to escape, takes a chance at luck or trickery, compromises, or goes boldly into battle for that which he knows to be right.

But in any event, we find ourselves living in the shadow of the past out of which we get, not new ideas, but inspiration and guidance coming directly from great characters of an earlier age.

Among other treasures which have come to man, is that of liberty. This is in fact, the first real great treasure and it came to man at a very early day, even from God, Himself. Man was granted his own will, that he might do as he liked. Two things are needful however; he must not allow his liberty to become license, nor must he sell it for a "mess of pottage." Both of these possibilities require to be watched, so therefore, in these days of world holocaust, it is essential that we

BUY WAR BONDS

and retain that heritage which is ours.

BOOK REVIEWS

The Dental Treatment of Maxillo-Facial Injuries: This is the title of a new book by W. K. Fry, P. Rae Sheppherd, A. C. McLeod, G. J. Parfitt of Guy's Hospital and the Royal Air Force (Eng.), published by J. B. Lippincott. This is a solid book profusely illustrated of 434 pages, including an index. This price of the book is \$6.50.

Fundamentals of Dental Histology and Embryology Including Clinical Applications: This is the title of the third edition of this same book by Charles F. Bodecker, Professor of Oral Histology and Embryology, School of Dental and Oral Surgery, Columbia University, and published by Columbia University Press. It was published originally by Macmillan Co. of New York. This book consists of 195 pages, well illustrated and divided into forty-one chapters. The chapters are numbered in Roman numerals at a time when there is a tendency to discontinue that system.

The pages are of unique size, 9 x 12, with text, 6 3/16 by 10 1/8 inches, leaving a wide margin for notes and so designated. It is a student's text and is well prepared and arranged for that purpose. It is printed on good quality of paper and is well indexed.

The American Illustrated Medical Dictionary: By W. A. Newman Dorland, A.M., M.D., F.A.C.S., Lieut.-Colonel, M.R.C., U.S. Army; Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association; Editor of "American Pocket Medical Dictionary." With the Collaboration of E. C. L. Miller, M.D., Medical College of Virginia. Twentieth Edition, revised and enlarged. 1668 pages with 885 illustrations, including 240 portraits. Flexible and stiff binding. Philadelphia and London: W. B. Saunders Company, 1944. Plain, \$7.00. Thumb-indexed, \$7.50.

Medical Licensure and Statistics: This is the so called State Board Number of the Journal of the American Medical Association. It is

statistical and serves the purpose for which it is indicated. Copies may be had from the American Medical Association.

Report of the Barouch Committee, etc.: This is a report of a special committee, selected to make a specific survey, under the chairmanship of Dr. Ray Lyman Wilbur, Chancellor of Stanford University. There are 119 pages, and of a very wide scope, as is further indicated in the first line of the report: "the committee has been doubly concerned by the wide scope of physical medicine . . ." It is a very interesting and illuminating report indicating particularly in the general trend of medical practice, the "empirical use of pills and potion is becoming obsolete." Medicine based on the prescience of physics and chemistry has amply proved its value. The committee maintains that this needs development, and that physical medicine should be organized by the physician. The survey has been made by some eight sub-committees, covering a very wide range of subjects in the general field of health practice. Anyone interested in a study of this kind should not miss the opportunity of the use of this report. Copies may be had by addressing the chairman at Stanford University, Palo Alto, California.

Atlas of the Mouth: Published and distributed by the Bureau of Public Relations, Council on Dental Health, American Dental Association.

This is the title of the book, published by the A.D.A., prepared by Maury Massler, D.D.S., M.S., Director of the Child Research Clinic, Assistant Professor of Histology and Lecturer in Somatology (College of Medicine), and Issac Schour, D.D.S., Ph.D., D.Sc., Professor of Histology and Head of the Department of Histology, University of Illinois, College of Dentistry.

It consists essentially of a series of plates, of normal and abnormal conditions of the soft and hard tissues of the mouth. These plates have been selected with the view to provide "the clinician with a sound background for diagnosis and treatment." Many of them are originals, although some have been adapted from older works and brought up to date in the "light of new knowledge."

It is a book that will serve every dentist very well, both from

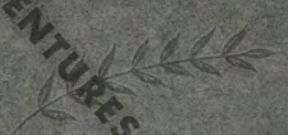
the standpoint of his own knowledge, and in discussion of certain conditions with his patients.

Further information may be had by addressing the A.D.A., 222 East Superior Street, Chicago, 11, Illinois.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF
SCIENCE 1945 MEETING

The American Association for the Advancement of Science will meet in Cleveland, Ohio, September 11-16, 1944. The Dental Subsection of the A.A.A.S. will present a symposium on Dental Caries and Fluorine on September 11. For any particulars, address: Dr. Paul C. Kitchin, Secretary, Subsection on Dentistry, A.A.A.S.

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