

MORTON.

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OF ANESTHESIOLOGY

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REMARKS  
ON THE  
COMPARATIVE VALUE  
OF  
ETHER AND CHLOROFORM,  
WITH HINTS UPON  
NATURAL AND ARTIFICIAL TEETH,

BY W. T. G. MORTON, M. D.

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### TO THE PUBLIC.

This little book is prepared to answer, once for all, the numerous questions put to me by my patients and others, which an extended practice hinders me from doing as conveniently in any other form.

W. T. G. M.

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**COMPARATIVE VALUE**  
**OF**  
**SULPHURIC ETHER AND CHLOROFORM.**

BY W. T. G. MORTON, M. D., BOSTON.

[ Extracted from an article published in the Boston Medical and  
Surgical Journal, September 11, 1850 ]

It is now nearly four years since the first demonstration, by myself, that the inhalation of sulphuric ether possessed the remarkable property of annihilating pain during dental and surgical operations, and that this inhalation was attended with no risk to life. The use of this agent may now be fairly considered as an essential preliminary in all operations, or conditions of the system, in which pain forms an important element.

Having, in a previous publication,\* given a sufficiently detailed account of the proper way to administer sulphuric ether, I shall not enter again into these details, but pass at once to the consideration of the comparative value of different anæsthetic agents. I need only allude to the comparatively slow progress of this discovery in America, and the immense mass of testimony from the most eminent men in Europe in favor of its almost universal applicability. To those who would be acquainted with the various attempts instigated by envy, malice, or interest, to establish priority of discovery, and deprive me of the honor of originating the idea, and

\* On the proper mode of administering Sulphuric Ether by Inhalation. Boston, 1847.

the consequent experiments, I may refer to the report of the Mass. General Hospital, re-published with notes by R. H. Dana, Jr., to the Report of the Committee to Congress, and to the award of the Monthyon Prize by the Paris Academy of Sciences.

After the claims of ether had become fairly established, another anæsthetic agent, *chloroform*, was introduced by Prof. Simpson, of Edinburgh, as a means of destroying the pains of parturition. This new agent soon created a strong impression in its favor, and has been by many substituted for ether. Its alleged advantages are its more rapid and intense action, its smaller dose, and its more agreeable taste and smell. Extensive trial, both in this country and in Europe, has, I think, proved its great dangers; several deaths have been caused by it, while there is no well-ascertained fatal result traceable to ether. For this reason, many surgeons, and among others, Dr. George Hayward, of this city, have denounced chloroform as dangerous, given up its use, and returned to sulphuric ether with increased confidence.

The question, then, is that of the comparative *safety* of sulphuric ether and chloroform. This question can only be settled by experience, and by comparing their effects on the system; such experience has been accumulated to a great extent, and it is the object of these pages to show that the conclusions drawn from it prove the great superiority of sulphuric ether to other anæsthetic agents. My own experience in the application of the former, which has been considerable, and probably unsurpassed by any in extent and freedom from accidents, will supply abundant materials for its full consideration. For the effects of chloroform, I shall depend on the published accounts of the best authorities.



To make a just comparison, it will be necessary to say a few words on the physiological and pathological effects of ether and chloroform.

Though the general effects of ethereal inhalation are similar in nearly all cases, yet certain idiosyncracies, or certain conditions of the system, modify the phenomena as they do those of all other medicinal agents. Instead of quiet and sleep, you often see excitement, agitations, or even slight delirium. In some cases small doses will etherize, in others it requires a large dose to produce unconsciousness. Sometimes, while pain is annihilated, the intellect and the senses are unaffected; the circulation, respiration, muscular action, secretions, and consequent phenomena, are variously modified. Besides idiosyncrasy, no doubt many of these anomalous or discordant phenomena are owing to improper quality or quantity of the ether, or some defect in the manner of administration. It is of the first consequence that the ether should be *pure* and highly concentrated. As a general rule, about two ounces (see table on pp. 12, 13,) should be used to begin with, this being sufficient for full etherization in most cases; and it is better to induce this rapidly by a large dose, than gradually by a succession of small ones. To secure a due proportion of atmospheric air to the lungs, a simple bell-shaped sponge is preferable to complex inhalers. Early experiments were attended with disagreeable results, from the supposition that it was necessary to inhale ethereal vapor alone, instead of atmospheric air charged with this vapor. The effects of ether are usually produced in from three to five minutes. On removing the sponge, and allowing the introduction of pure air, recovery takes place in about the same time. That there is no danger in

prolonging the state of etherization for a considerable period, the records of midwifery fully prove. After recovery from this state, the brain and nervous system are rarely inconvenienced by the excitement, if the ether have been pure; even headache is uncommon, and nausea or vomiting, delirium, or convulsions are quite rare.

The symptoms indicate two distinct stages of etherization, or rather the complete and the incomplete. As the latter is all that is required for the dentist's operations, in which no important nerves or vessels are wounded, it is important to be able to recognize it. After the cessation of the slight cough which leads the patient to reject the sponge, the respiration becomes more rapid and audible; the pulse is natural or slightly accelerated; the pupils are unaffected; the muscular apparatus is somewhat excited, and the movements more or less disordered; the inspirations become deeper, till at last insensibility comes on. In this stage we meet with the most curious affections of the intellectual and sensitive functions, in which sensation is destroyed while the intellect is untouched, the pain perceived but not recollected, or the will active and the power of motion lost. These are now known to be cases of incomplete etherization. The completed stage is characterized by a perfect relaxation of the muscular system; the pulse becomes slow; the pupil often dilated: the respiration often snoring. The sign to suspend the application is the diminished force and frequency of the pulse, and even before this, the muscular relaxation.

Ether undoubtedly acts in the first place as a stimulant, and finally as a narcotic. Magendia and Or-

fila have offered strong reasons for believing that the anæsthetic state is analogous to intoxication from alcohol. Both produce the same excitement and subsequent insensibility; both act principally on the nervous system through the medium of the circulation; both may be detected in the blood by undoubted tests. It may, then, be called an intoxication, quickly produced, and as quickly disappearing.

When we consider the immense number of cases in which ether has been administered, and the exceedingly few and trifling accidents consequent on its use, we may fairly say that its inhalation is unattended with danger. I have administered it in thousands of cases, without a single alarming result, to persons of every age, temperament, and condition of bodily health. The experience of Dr. George Hayward, of this city, is to the same effect. He says (Boston Medical and Surgical Journal April 10, 1850) "I have administered it to persons of all ages, of every variety of constitution and in almost every state of the system, and I have never known in a single instance a fatal or alarming result. I have given it to infants of seven weeks old, and to individuals of 75 years, with entire success. There is reason to doubt whether death has in a single instance been produced by it, when it has been properly administered."

Its advantages as an anæsthetic agent are its perfect safety, the ease with which it is administered, and the absence of ill consequences. Nausea, vomiting, and irritation of the air-passages, rarely occur unless the ether be impure, or be improperly administered; excessive narcotism may be remedied by cold water externally, and stimulants, internally, which will soon excite the respiration to free the

lungs from the ethereal vapor. The pungent and disagreeable odor of ether is a trifling objection compared with its advantages over chloroform in point of safety. I may again quote Dr. Hayward in this connection, who says, "I should give it the preference over every other article with which I am acquainted, that is used for the purpose of producing insensibility."

*Chloroform* or the perchloride of formyle, which was at first extensively employed as a substitute for ether, till numerous fatal accidents led to its more limited use, was first brought into notice as an anæsthetic agent by Dr. Simpson, of Edinburgh. He says it possesses over sulphuric ether the following advantages: it is more powerful, 120 drops being sufficient to produce insensibility; he has seen it produced by six or seven inspirations of thirty drops of the liquid"; its action is more rapid and complete, and generally more persistent; it is more agreeable to the taste and smell. He might have added, if experiments then had allowed, that it is also *very much more dangerous*, and its very danger consists in its so-called advantages. We have reason to believe that the chloroform used by Dr. Simpson is a purer and superior article to that commonly used here; this may account for the favor with which he views it. To counterbalance its agreeable taste and odor, chloroform is of an acrid caustic nature, and is apt to excoriate the skin. According to Dr. Hayward, its administration is generally followed by headache and vomiting, which continue for hours, with restlessness and want of sleep. Several cases came to his notice where it was taken in small quantity for dental operations, in which the brain and nervous system were affected to an alarming extent. Convulsions have

frequently attended its use, as detailed by Dr. J. C. Warren (On chloroform, Boston, 1848).

The physiological effects of chloroform are of the same nature as those of ether, only greater in degree, more rapidly produced, less to be calculated on, and therefore more dangerous.

Many authorities which might be quoted, sufficiently attest the great danger of chloroform: and unfortunately there are many cases of *death* which can only be attributed to this powerful agent, though administered with care to healthy persons, in very small quantities, and by cautious practitioners. Even the death of a *single* individual should open the eyes of its advocates to the dangers of its use; but when upwards of *twenty* fatal cases can be clearly traced to the action of chloroform, it seems unjustifiable practice to submit a patient to its dangers, especially when we have in sulphuric ether an agent equally *effectual* and perfectly *safe*.

Malgaigne, in his Report to the French Academy, says that chloroform possesses a poisonous action peculiar to itself, which action, by being too much prolonged, may cause instant death; we can never be certain of being able to control it, within the bounds which produce mere *insensibility*, when the passage from this to *death* is so sudden and so near.

Dr. Hayward, alluding to the undoubted fatal cases from the use of chloroform, says, "I know not how a conscientious man, knowing this fact, can willingly take the responsibility and expose his patient to this fearful result."

I will here introduce a table from a few results of my own experience in dentistry, as to the quantity of ether required, the time for producing and the duration of unconsciousness, with its general effects.

Sex	Age.	No. of Teeth extracted	Quantity of Ether used	Insensibility produced in	Recovery in	Temperament.	Pulse at commence- ment and end	Remarks.
F	33	16	2 oz	5 m	1½m	Lymphatic	70-105	Perfectly quiet
F	34	21	1 1-2	3	1	Nervous	77	do
M	18	1	1	3	1	Lymphatic	105	Restless
M	40	7	3-4	2	2	Very Nervous	100	No resistance
M	21	1	1	1	1	Lymphatic	120	do
M	48	1	1 1-4	1 1-4	1	Robust	70	Slight Resistance
M	28	1	1	1	3-4	Delicate	70-60	Quiet
F	..	2	1 3-4	3	2	Common health	65-70	do
F	23	Nrv. destr.	3-4	1 1-2	1-2	.....	100-130	Considerably agitat'd
M	..	1	1	1-2	1-2	.....	.....	.....
M	24	2	1 1-2	1 1-2	inst'ly	Common health	.....	.....
F	20	Tooth exc.	1	3	2	.....	Irregular	.....
M	29	4	1-2	2	2	Sanguino	do	Perfectly quiet
F	18	1	1	3	1	.....	32-110	Quiet
M	10	4	1	2 1-2	1 1-2	Lymphatic	.....	Laughter
M	25	4	1	3	3	do	80-90	Quiet
M	18	2	1	1 3-4	1	do	.....	do
F	21	2	1	1 1-2	.....	Common health	Quickened	do
							100-120	Trembling

F 33	1	1 1-2	.....	do	80	Conscious but insens.
F 18	1	1 1-2	1 1-2	do	130-120	Quiet
M 21	3	1 1-2	2	do	100	do
F 25	3	1	1	.....	80	do
F 18	2	1 1-2	1 1-2	.....	100-110	do
M 21	4 Nvs. dest.	2	6	Very nervous	160-100	do
M 30	1	1	1	Sanguine	80	do
F 20	1	2,3,4	1	Weakly	58-120	Perfectly quiet
F 34	1	1 1-2	3	Nervous	130-80	do
F 32	6	5	5	Lymphatic	80-90	do
F 40	10	2	4	Weak & Nerv.	70-80	Occasional spasms
F 22	16	2 3 1-2	4	Lymphatic	Quickened	Quiet
M 3	1	3	3	Nervous	130	Resisted
F 20	3 roots	2	1 1-2	Lymphatic	Quickened	Pleasant dreams
M 38	exc, 3 nv.d.	5	5	Sanguine	70-130	Agitation
F 45	6 roots	3-4	2	Lymphatic	.....	Nausea
F 21	Nrv. extr.	2	3	Very Nervous	83-120	Dreams
F 25	3	3	2	do	Quickened	Conscious but insens
F 18	3	3	3	Nervous	.....	Slight resistance
M 19	.....	3	2	Very Nervous	.....	Trembling
M 30	1 milk tooth	1	1	Nerv. Sanguine	Regular	Delightful dreams
M 25	8 roots	3	3	Lymphatic	Quickened	Bad taste
F 20	1	3 1-2	3	Nervous	70-60	Screamed but insens.
F 16	1	3	1	do	Regular	Perfectly quiet
F 25	1 filled	3	10	Lymphatic	do	Conscious but insens.
M 10	5	2	1	Sanguine	Quickened	

As to the relative safety of sulphuric ether and chloroform, we may justly conclude, from the numerous data now existing in the annals of medicine and surgery :—

1. That there is an immense preponderance of testimony in favor of sulphuric ether, both during and after its application.

2. While there is but one case, and that not well ascertained, in which ether has been accused of producing fatal results, there are not less than twenty, and probably many more, in which the fatal result is clearly traceable to chloroform.

3. Chloroform has caused death in the young and the old, the strong and the weak, the healthy and the diseased ; and cannot be said to be safe in any condition of the system.

4. Chloroform is much stronger and more prompt in its action than ether, and less volatile ; which renders it impossible to calculate its effects, and difficult to avert danger in season to save life. The anæsthetic effects of ether gradually subside when its use is stopped ; but the less volatility of chloroform often causes an aggravation of the symptoms, after the inhalation has ceased.

5. Chloroform may kill directly by its action on the nervous system and the blood, or indirectly by asphyxia.

6. There are certain idiosyncracies, which cannot be known in advance, in which a very minute quantity of chloroform has produced, and will again produce, death.

7. In females and children, in whom there is generally a greater susceptibility of the nervous system, the action of chloroform is quicker, more complete, and therefore more dangerous.



8. Chloroform has produced instant death from syncope, or cessation of the action of the heart; it is therefore extremely dangerous in cases where the heart's action is enfeebled by lingering disease, by fear, by valvular or aneurismal disease, by old age, by sudden or large losses of blood, or any other cause of weakness.

9. There is no reason for diminution of confidence in the *efficacy* and perfect *safety* of sulphuric ether; while there is an unanswerable reason why chloroform should be abandoned, as its use involves the risk of a *fatal result*, which can neither be foreseen nor prevented, from the immediate suspension of the powers of life during its administration, or consequent changes in the nervous and vascular systems.

10. That while sulphuric ether will produce *safety* all necessary results expected of anæsthetic agents, no one is justified in submitting his patient to the risk of his life by using chloroform, simply because it is more agreeable, more powerful, cheaper, or more portable.

19 Tremont Row, Boston, Sept 3, 1850..

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## DECISIONS ON THE ETHER DISCOVERY.

*Extract of a Congressional Report, made by a Select Committee to the House of Representatives, January 19, 1849.*

“Considering the case presented on its own merits, and independent of any authority whatever, your committee has come to the same conclusion that was arrived at by the board of trustees of the Massachusetts General Hospital at their annual meeting in Jan-

uary, 1848, and subsequently confirmed in 1849; and they cannot better state the propositions, which they consider established, than by adopting to this extent the language of the report of that institution. It is as follows: "1st. Dr. Jackson does not appear at any time to have made any discovery, in regard to ether, which was not in print in Great Britain some years before. 2d. Dr. Morton, in 1846, discovered the facts, before unknown, that ether would prevent the pain of surgical operations, and that it might be given in sufficient quantity to effect this purpose without danger to life. He first established these facts by numerous operations on teeth, and afterwards induced the surgeons of the hospital to demonstrate its general applicability and importance in capital operations. 3d. Dr. Jackson appears to have had the belief that a power in ether to prevent pain in dental operations would be discovered. He advised various persons to attempt the discovery; but neither they nor he took any measures to that end; and the world remained in entire ignorance of both the power and safety of ether, until Dr. Morton made his experiments. 4th. The whole agency of Dr. Jackson in the matter appears to consist only in his having made certain suggestions, which led or aided Dr. Morton to make the discovery, a discovery which had for some time been the object of his labors and researches."

And although your committee have deduced their conclusion from the evidence, without resting on opinion or authority, they are greatly strengthened by the concurrence of that highly intelligent and scientific body of men who examined the subject on the spot, while the transaction was yet recent, and who were acquainted with the conduct of the parties dur-

ing the progress of the discovery and with the character of the witnesses. This conclusion being reached as to the exact state of fact, your committee are satisfied thereon that Dr. Morton is entitled to the merit of the discovery. "*The great thought was of producing insensibility to pain, and the discovery consisted in that thought, and in verifying it practically by experiment.* For this the world is indebted to Dr. Morton, and even if the same thought in all its distinctness and extent arose also in the mind of Dr. Jackson, at or prior to that time, yet he did not carry it out by experiment and thus give it to the world; and on that supposition it was the case of an important thought occupying two minds at the same time, one only of whom brought it out by experiment, and is therefore the discoverer. It was clear that the discovery was destined soon to be given to the world. Science had almost reached it; but a single step and it was compassed; and it happened in this case, as in many others, that the necessities of the profession, a want deeply felt in the daily business of life, rather than scientific induction, at last produced the consummation.

*That it is a discovery we cannot doubt; that it is an advance beyond the heretofore known walks of science, we know; and scientific men of all civilized nations, even to the extremities of the earth acknowledge and proclaim it."*

---

*Letter from Alexander Vattmare, relative to the decision and award of the Paris Academy of Science.*

NEW YORK, May 15, 1850.

DR. MORTON, BOSTON,—DEAR SIR,—I haste to forward to you the inclosed letter, just received, from

Mr. Flourens, perpetual Secretary of the Academy of Sciences, informing you officially of the decision of the Academy, proclaimed at its public meeting on the fourth of March last, and of the prize awarded to you, for having introduced the method of inhalation by ether in surgical operations.

Happy to have been, on this occasion, the humble intermediary of the sentiment of esteem, of this illustrious body, for your most important labors,

I have the honor of subscribing myself, Dear Sir,  
Very respectfully yours,

ALEXANDER VATTEMARE.

N. B. It is necessary, to receive the 2,500 francs awarded, that you should send to some of your friends in Paris, a regular power of attorney, certified by the French Consul, in Boston, and this gentleman by calling at Mr. Penyard, the Treasurer of the Institute of France, who will, on his receipt, pay the money at once. A. V.

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*Correspondence relative to the presentation of a Testimonial to Dr. Morton.*

BOSTON, May 12th, 1848.

*Dear Sir* :—At a meeting of the Board of Trustees of the Massachusetts General Hospital, a few weeks since, it was informally suggested that a limited subscription of one thousand dollars be raised for your benefit, in acknowledgment of your services in the ether discovery. No one to be asked to subscribe more than ten dollars. We consented to act as a committee to receive and apply the proceeds of this subscription. The proposed sum having been obtained, we have now the pleasure of transmitting it to you. We also enclose the subscription-book in

a casket which accompanies this note. Among its signatures you will find the names of not a few of those most distinguished among us for worth and intelligence. It may be remarked, that it is signed by every member of the Board of Trustees.

You will, we are sure, highly value this *first* testimonial, slight as it is, of the gratitude of your fellow-citizens. That you may hereafter receive an adequate national reward is the sincere wish of

Your obedieat servants,

(Signed) SAM'L FROTHINGHAM.  
THOMAS B. CURTIS.

DR. WM. T. G. MORTON.

(REPLY.)

BOSTON, May 15, 1848.

*Gentlemen,*—I need hardly say that your communication of the 12th instant, with the accompanying casket, subscription-book and donation have been received by me with gratification of no ordinary degree.

Apart from the positive value of the gifts, the kind feeling which has led to this manifestation on the part of so many of the first citizens of Boston, has affected me in a manner that I am not likely soon to forget. The circumstances in which I have been placed for some time past, give them an additional value; and by my children the testimonial will be appreciated hardly less than by myself.

In recognizing among the names, those of each of the Trustees of the Massachusetts General Hospital, I am bound to acknowledge this renewal of my indebtedness to that institution. It was the first to receive, verify, sustain and promulgate the ether discovery; and from the earliest I have received from

its officers, surgeons, physicians, and trustees, nothing but constant courtesy, liberality and kind consideration.

Allow me to acknowledge your liberal kindness in acting as a committee for the purpose of the subscription, and the tasteful manner in which you have given to it an enduring value and signification.

You are pleased to speak of my services as deserving "of a national reward." I am glad to have your concurrence and sympathy in this opinion, and it is not unknown to you that if received, it would be to me not only a reward, but an indemnification and relief. Respectfully,

Your obliged and obedient servant,  
(Signed) WILLIAM T. G. MORTON.

TO MESSRS. SAM'L. FROTHINGHAM, and THOMAS B. CURTIS.

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On a beautiful silver Casket, forwarded to Dr. MORTON, was the following inscription :

"Testimonial in honor of the Ether Discovery of September 30, 1845. This box, containing one thousand dollars, is presented to William Thomas Green Morton, by the members of the Board of Trustees of the Massachusetts General Hospital, and other citizens of Boston, May 8, 1838."

The participation of Dr. Jackson in the discovery, above alluded to, is thus estimated by Dr. Henry J. Bigelow, in his work on "Ether and Chloroform," page 26.

"The suggestion occurred to Davy, Jackson, Wells, Morton, and many others. Horace Wells seems to have conceived this hypothesis more distinctly than any other individual. So persuaded was he of its probability, that he made several experiments; and even made a journey to the Medical Class at Boston, before whom, however, he entirely failed to verify his theory. He then abandoned it, until it was confirmed by Dr. Morton. Dr. Jackson fails to prove that Dr. Morton was ignorant of the hypothesis, until he suggested it to him, because Dr. Morton shows by the evidence, that he was considering the properties of ether, at the intervals both of three months, and of three days, before his interview with Dr. Jackson.

*I have shown that he who verifies the suggestion is the real discoverer. Dr. Morton, according to the evidence, did generalize this discovery. He verified the suggestion, from whatever source it emanated. He made and modified the experiments at his own discretion. He assumed the responsibility of danger. He first conclusively demonstrated of ether—1, that it would always produce insensibility to pain; 2, that it was safe. These two points constitute the discovery. Dr. Morton demonstrated these points, and no one else did."*

## HINTS ON NATURAL AND ARTIFICIAL TEETH.

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THERE is not any of the "ills which flesh is heir to," more excruciating or intolerable, or which so completely incapacitates a person for business or pleasure, as the Toothache.

The majority of persons who are actively engaged pay little attention to their teeth, until they become painful.

The evils arising from this neglect are, too frequently, the loss of many, or, in some cases, *all the teeth*; which, by an early visit to the Dentist, might have been prevented.

---

### VALUE AND IMPORTANCE OF THE TEETH.

Where the teeth are good, there is when speaking, or smiling, especially, a fascination present, which prevents further examination of the countenance.

It is therefore evident that much of the beauty of the countenance depends upon a happy and regular disposition of the teeth.

If the countenance of youth and age are compared, the great difference will be found in the alteration of the mouth.

*When the teeth are lost, the nose and chin approximate, the cheeks become hollow and shrunken, the lips thin and contracted, thus giving an appearance of premature old age.*



Good teeth are not only indispensable to *personal beauty*, but on their regularity depends perfect articulation.

The most striking cases are those persons about the middle periods of life, who have lost their teeth; for however clear and perfect their utterance may have been before their loss, it is impossible to regain it without supplying the deficiency by means of artificial teeth.

The most important use of the teeth is mastication of the food, previous to its being received into the stomach. The distressing sensations arising from imperfectly masticated food must immediately convince every one of their importance in this first step towards good digestion, and of the paramount necessity of possessing teeth, either natural or artificial, as the means of retaining health.

How valuable, then, are regular and sound teeth, contributing so much beauty and expression even to the finest face.

Can more important or urgent reasons be required to enforce an immediate attention to their preservation?

Many persons habitually neglect their teeth; and, from having long seen them discolored, imagine that they are decaying or corroding beyond all recovery. This is frequently a mistaken notion, as, by a visit to the Dentist, that discoloration may be removed without the least injury to the teeth, and they will again appear of their natural color.

If persons foresaw the consequences of this neglect they would no doubt act differently. The accumulation of tartar very soon produces a gradual loosening of the teeth, which almost imperceptibly, although surely, undermines them, and ends in the successive loss of the whole of them.

### CARE OF THE TEETH.

At the age of five years give your children tooth brushes and teach them to cleanse the mouth and teeth morning and evening, especially on going to bed. At that age powder is not requisite, but cleanliness is necessary at all ages. Food, fruit, etc., left in the mouth and between the teeth during sleep are the principal causes of their decay. Give your own teeth the same attention. Tooth pricks are indispensable. Let your brushes be as hard and your water as cool as you can comfortably support. Twice or thrice a week, use dentrifice containing no deleterious substances; carefully avoid powders and elixirs in which there is any acid; suffer no acid whether taken in food or drink, to remain in the mouth; keep your teeth clean, content yourself with their natural color, any effort to give them an unnatural whiteness will injure them. Your dentist possesses your confidence, or you will chose another; therefore, go to him at least twice a year; allow him to do what he thinks best; pay him, and don't stop to waste his time with long and useless relations of past calamities—his time is precious, other persons, who value their teeth as you value yours, are waiting their turn for his aid. Recollect that early and careful attention to your teeth, cleanliness of mouth, temperance of living and abstinence from acids, are the best maxims for the beauty and preservation of the teeth.

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### LOOSE TEETH.

This is a state of the teeth which prevails to a great extent and more generally among persons about the middle periods of life; especially those who have resided in India, or other warm climates.

Having devoted much time and study to this particular department of dentistry, I have succeeded beyond my most sanguine expectations, in applying a **NEW PRINCIPLE** for arresting this very prevalent and most destructive state of the gums and teeth; by which means teeth that are very loose, and apparently likely to fall out of their sockets, may be rendered firm, and retained for many years.

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### SCALING THE TEETH.

Is highly necessary, and of great value in their preservation, wherever there is any tartar accumulated, which is generally the case if the teeth have been neglected from any cause.

Many persons fear to apply to the Dentist for this purpose, under an erroneous impression that they have to undergo some painful operation. This is not the case; if skilfully performed, the pain is so trifling as to be unworthy of regard by even the most sensitive.

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### PRESERVING THE TEETH BY STOPPING OR PLUGGING THEM.

When decay, or caries, makes its appearance in a tooth, **HOWEVER SMALL THE APERTURE MAY BE, IT SHOULD BE FILLED WITHOUT DELAY.** It is a great error to postpone this until the tooth is painful, as the earlier the teeth are stopped, the more successful will be the result, and the greater number of years will the tooth or teeth be preserved.

The progress of decay is entirely arrested, and the tooth saved, by stopping the hollow with gold, which effectually excludes the air and prevents foulness, or the pain and irritation occasioned by food

lodging in it. By the beautiful and useful operation of stopping or plugging teeth, which are greatly injured by caries, they may be preserved for many years ; in most instances *during the remainder of life*, and frequently from ten to twenty teeth may be preserved by this means, in the same individual.

The commencement and progress of decay is so insensible, that it may exist many years ; and even the person himself is often not aware of it till it has penetrated the very centre of the tooth. Having reached the cavity, it there commands attention, on account of the severe toothache it occasions.

However well the importance of filling teeth may be impressed upon the mind, there is a cause escaping genereral observation, which destroys as many teeth as the absolute neglect of filling. Many dentists never half remove the decayed matter from a cavity, and in preparing to fill it, their great idea and only plan for making the filling stay in, is to make the cavity larger inside than at the entrance— they stuff in the filling until it looks full although it is packed no more solid than if it were put into a neck of a bottle, and will not as well prevent the entrance of moisture ; consequently rapid internal decay goes on, while the tooth appears to the patient to be in a state of preservation, and he is not undeceived until he happens to try the filling with a pointed instrument and finds it quite soft and the tooth sensitive ; or until it is crushed in mastication. Then the deception is evident, but unfortunately not until it is too late.

Hence many people, when they apply for dental operations, and are informed that from one-half to two hours, and sometimes more, are required to fill a tooth, and that from 2 to 5 or 7 dollars is the charge exclaim, why, Mr— has done it in 15 minutes and

asks only a dollar ! while others who have suffered from such dentistry, say they have no faith in filling teeth—have had theirs filled several times, and are now going to let them decay, and have artificial ones.

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### REGULATION OF TEETH.

The author has lately contrived a new and novel instrument for the regulation of teeth, which he thinks will be admirably adapted to this too much neglected branch of the profession.

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### EXTRACTION OF TEETH.

Incipient teeth may be extracted too soon or left too long ; if they loosen themselves by the absorption of their fangs and allow the permanent to take their proper place, all will be well ; but if the first teeth remain firm and the second on their appearance require room, do not delay to give them place by removing those adjoining of the first dentition. The permanent teeth must have room, or irregularity and decay will ensue.

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### OF ARTIFICIAL TEETH.

The art of supplying lost teeth so as satisfactorily to answer all the purposes of natural ones, and at the same time without doing injury, to give support to and preserve those that remain, was very imperfectly understood until late years.

The very great perfection which this art has now attained would scarcely be believed by those who are not familiar with the subject.

Either partial or entire sets of teeth scientifically

designed, and skilfully adapted, may be worn with the greatest ease and satisfaction ; but on the contrary those that are ill made and unskilfully adapted are troublesome to the wearer, an impediment to speech and mastication, and even a greater blemish to the countenance than the want of teeth ; those *that are well adapted, are on the contrary, easy, useful, and highly ornamental.*

In the construction of artificial teeth, utility and comfort, as much as appearance, ought to be considered by the Dentist. The latter refers to the successful imitation of nature, in the form, color and proportions of the teeth, and especially in the shape and expression of the mouth.

Artificial teeth are retained in the mouth by three different plans ; (1st.) by spiral springs attached by their ends to the pieces of the two jaws, when the set is complete, or when the under teeth are perfect, to caps fitted to these teeth.

(2d.) By clasps of bands of elastic gold, passing partly round natural teeth. The clasp is attached in a part only of its length to the base ; the remaining portion is left free, and springs open to receive the tooth. If at any time the clasp does not firmly embrace the tooth, it is only necessary, to make it do so, to bend the free portions toward each other ; it will then again take firm hold.

(3d.) By the pressure of the atmosphere. The gum-fitting surface is so accurately fitted to the gum, that the saliva and the air are excluded, whereby the pressure of air acting only on that surface of the teeth opposed to the tongue, holds them in tight contact with the gums.

Teeth on this principle though the most difficult to construct, are the best kind when well constructed,

as they are wholly independent of any remaining natural teeth of the same jaw and also of those of the opposite jaw.

The amount of atmospheric pressure will, of course, be proportioned to the surface of the base, and the freedom from lateral sliding in proportion to the convexity of the gums, unless there be teeth remaining in the jaw to steady them.

The first effect, on putting in a set of artificial teeth, is most unquestionably great discomfort; the mouth feels filled, the speech is rendered difficult and indistinct, and mastication impossible; yet, within a fortnight, or three weeks at most, and often within even a week, all those difficulties vanish, and the patient tells you he could not do without the new teeth. Distressing nausea is among the occasional early consequences of wearing artificial teeth, but this also subsides with a little patience.

To masticate well with false teeth requires both time and perseverance; the ability being acquired sooner or later in proportion to the aptitude of the individual; but all may acquire it if the teeth be well made.

There are a few persons, some dentists say, whose jaws are so formed that sufficient available bearing surface for the base can scarcely be found; and, that, there are others, again, in whom the lining membrane of the mouth is so irritable that the presence of artificial teeth cannot be borne—or, at least, without great effort. But I do not hesitate to say, if the effort be made and continued, and the teeth are good in construction, and well adjusted, success, even in the most difficult cases, will be the consequence.

**Artificial teeth must be regarded by the wearer as**

tools, the use of which has to be learned by patient trials. The first time you take up a joiner's plane you cannot work it, nor would you expect to do so without previous practice; so, with artificial teeth, you have no right to expect to masticate effectively with them until by practice you have learned their use. I would recommend that patients before they wear new teeth should carefully examine them in their several parts, and actions, and thus learn how they should be used, and what is to be expected of the teeth and what of themselves in acquiring the art of mastication. If this expedient be adopted, many ill-conceived attempts, and consequent failures productive of disappointment, will be avoided.

Nothing short of never removing artificial teeth from the mouth, should be more strongly deprecated than the habit some people have of taking them out only once or twice a week, and at other times cleaning them in the mouth. They cannot be well cleaned when in the mouth, and the surface of the mouth cannot remain healthy when perpetually covered. It must be borne in mind that the gums are covered with epithelium, and that it is the nature of this tissue to be perpetually forming below, while it is suffering perpetual loss from its surface. The scales are rubbed off by the tongue and teeth. Now, if the epithelium be perpetually covered by the base of artificial teeth, the formation will still go on, but the loss from the surface is retarded. The outer epithelial scales may separate, but cannot escape from the surface; they, therefore, accumulate under the base, and there become highly offensive. After a while the mucous membrane is inflamed, and the development of epithelium is suspended or vitiated; the scales no longer adhere to each other to form a membrane. If the



teeth be removed after the mouth has got into this condition, the surface which has been covered will be found red and vascular, and will bleed on the slightest touch. The fitting surface of the teeth will be coated with a white sebaceous matter highly offensive.

It will be inquired, at what time of life, and under what circumstances, recourse should be had to artificial teeth, how much may reasonably be expected of them, and how long they will last? Artificial teeth should be adopted whenever the want of teeth is felt, whenever articulation becomes imperfect, or when mastication can no longer be performed by molar teeth. I say molar teeth, because some persons, when the grinders are lost, masticate with the incisor teeth, in which case the incisors are soon worn down, or the upper ones are driven outwards and loosened by the lower front teeth; and thus they, by being forced into use for a purpose for which they are not fitted, become destroyed.

If the wearer be a person of average perseverance and average conformation of mouth, he may expect to have articulation perfectly restored, and mastication of ordinary food rendered effective, by using well-designed and well-made artificial teeth.

Then, as regards the durability of artificial teeth. This will vary with individuals, the variation depending on the state of the saliva, the care with which they are cleaned and kept, and used, but chiefly upon the material used in their construction; also, in a great degree on the manner in which they are made, whether well or ill.

From one to a complete set can be fitted in the mouth with the greatest accuracy and precision, answering most fully every purpose of articulation and

mastication ; and so perfectly natural in appearance as to defy detection by the closest observer, *without giving any pain whatever.*

To effect this, much labor and skill are required : but, when accomplished, it restores the mouth to a state equal to the natural one, and renders the patient easy and comfortable.

Ligatures should never be used to fasten artificial teeth ; they should be so constructed as to be removed as easy as a glove, and yet be perfectly secure and steady in the mouth ; objects which can only be obtained by a Dentist who perfectly understands his profession.

In all cases, very great accuracy of fitting to the model, and a correct adaptation to the mouth, is necessary.

In cases where there is absorption or loss of substance, a very great change takes place in the appearance and expression of the countenance.

This absorption occurs more or less in all cases : and to ascertain the exact extent of such loss of substance is very important previous to supplying artificial teeth ; as, on a judicious arrangement of the material, in making good such losses with artificial gum as well as teeth, where the loss is considerable, depends that perfect restoration of the features to their natural symmetry, which the art of Dentistry is capable of giving.

By attention to the above, any degree of fulness of the lips or cheeks can be obtained, without inconvenience to the wearer.

Much has been said with respect to the comparative merits of bone or gold, as the frame for artificial teeth ; some Dentists using bone in every case, however inapplicable : others using gold.

The author has important reasons for giving a preference to gold in most cases.

Ivory, or the tusk of the Hippopotamus, soon decomposes, and notwithstanding the greatest care and cleanliness, will not last long.

It is in all cases desirable to place as *little in the mouth as possible*, that the articulation and mastication may be performed with more freedom.

Gold of a fine quality can be used with the greatest advantage, as it may be thin and small in size, and yet possess infinitely more durability than ivory, which, when made thin, is very soon destroyed, and therefore, from the necessity of frequently renewing it, becomes expensive.

The teeth that are usually supplied by Dentists, are either natural or mineral.

Natural teeth have been long employed by the most celebrated Dentists, and with great success as regards appearance and utility; but with respect to their durability, the time they will last varies according to the constitution of the wearer, notwithstanding their handsome appearance when first inserted.

The experience of an extensive practice, particularly in the branch of the profession treated of in this chapter, has convinced me that in order to introduce and secure every possible excellence in the insertion of a set of teeth, it is indispensable for a dentist to manufacture his own teeth; although this is far more expensive than to purchase them—as in case of a suit of clothes made to order and a suit ready-made; yet the difference in the fit is quite as great. I was therefore early induced to direct my earnest attention to this particular branch; and the result of several years close application is, that I am now enabled to manufacture and set *Teeth*, composed of silicious

substances, with a very fine enamel upon them, which admits of every variety of shade and color, and enables me to match, with the greatest nicety, both in *form* and *color*, any teeth that remain in the mouth.

They are perfectly *incorrodible*, and cannot be affected in any way by the saliva, heat of the stomach, or acids of any kind! IN SHORT, THEIR DURABILITY IS PERFECT, AS THEY WILL NEVER DECAY OR BECOME THE LEAST DISCOLORED, AND WILL APPEAR AS WELL AFTER TEN YEARS' WEAR AS THEY DO THE FIRST DAY THEY ARE PLACED IN THE MOUTH.

The author will be happy to show them in every variety to those who are interested in this subject

#### *Dr. Morton's Tooth Manufactory.*

To accommodate the rapid growth of his professional business, Dr. Morton has recently established a manufactory for the production of mineral teeth, which by its perfection and extent enables him to work to the best advantage, and bid defiance to the world to produce better work or at a more reasonable price. The principal materials, feldspar and *Silex*, are brought from the best known locality, New Jersey, by tons at a time. By the first process, at his manufactory, it is reduced to a fine paste by a mill driven by steam. It is then colored with the proper metallic oxides so as to produce teeth of all the different shades found in nature. Thus prepared, it is put in shape by moulds, of which he has an almost infinite variety, giving him always from among them teeth exactly of any desired form. Of these teeth several thousand are turned out per day, by 15 workmen in constant employ. For the conversion of the teeth, when thus moulded and colored in the paste, into the solid porcelain fit for service, he has a furnace which bakes 200 every 10 minutes.

When these teeth are held against the light, with a recently extracted tooth, there will be found but little or no difference, in the degree of translucency, between them. The resemblance of the bone dipping into and surrounded by the enamel is perfect.

Having communication from his house to his laboratory by speaking tubes, he can, in a moment, call any workman in any branch to him, to receive his directions. To explain more fully, and leave no mystery in any part of the process, the following account will show precisely what happens to one getting an entire set of artificial teeth, and how little time and patience are consumed in obtaining so great an improvement of personal appearance as well as of solid comfort.

On application for a set of artificial teeth, a patient takes a seat in a convenient chair. A preparation for taking an impression of the mouth is sent for and brought in by an assistant. In five minutes the impression is secured with all desirable accuracy and perfection, and it only remains to ascertain of the foreman of the establishment when the work will be ready for trial. An engagement is based upon this information, according to which the patient comes again and is detained from ten to twenty minutes while the alterations to be made in the finish and final adjustment are ascertained. Another appointment is then made of the time at which he is to call for his teeth completed.

Teeth produced by this process at his manufactory were actually mistaken for natural teeth by members of the Dental Profession. They are of a strength which bids defiance to any injury from hard substances in the mouth, and of a chemical constitution which cannot be affected by any acid. In short they

will endure a life time, without either abrasion or decay, in which respect they have altogether the advantage of any teeth ever implanted by nature.

In order to place his own at the head of the dental establishments of the world, Dr. Morton has spared no expense of time or money. He has conducted many hundreds of experiments of his own, by which he has secured valuable improvements in different branches of the art, and he has purchased, at a liberal outlay, the knowledge of and right to use the improvements of others. He has in this way made himself master of every thing valuable in the modern science and art of dentistry.

In the practical conduct of his establishment, it is a rule never departed from, that all operations upon the mouth pass through his hands, and he himself makes a pattern of every piece of work which goes into his laboratory, so that no mistake can be made in its execution.

It must be obvious to any one, that in such an establishment, with an almost unlimited abundance of means, a minute division of labor and perfect system, work can be turned out with much greater perfection and despatch as well as for a lower price. And to this it should be added that all the workmen in this establishment have been instructed by the undersigned, and several of them have been in his employ for some years, and that his own personal services are rendered in every case, so that nothing can escape his attention. It cannot, therefore, be thought too much to say, that he has made the birth place of painless surgery the home of the most perfect dentistry — the place where there will neither be pain in parting with the old, nor mortification and disappointment in securing the new teeth.

## TESTIMONIALS, &c.

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BOSTON, Oct. 18th, 1847.

DEAR SIR: Having had opportunity, as a teacher of elocution, of training the vocal organs of persons who had been under your care, with a view to having a deficiency of the palate supplied by your contrivance for that purpose, I have been much impressed with the success attending the use of the artificial substitute. The exact and skilful adjustment of the article to the defective parts of the mouth, seemed not only to contribute to the convenience and comfort of the patient, but to secure, to a very great extent, the natural and proper sound of the voice, and the distinctness of the articulation. In one instance, the good effect was such as I could not have credited without actual observation.

Yours, with sincere regard,

WILLIAM RUSSELL.

DR. W. T. G. MORTON.

[From Justin Edwards, D. D.]

DEAR SIR: The teeth which you put in for me are doing exceedingly well. They set easily in the mouth, assist me much both in mastication and in speaking. I rejoice in the success of your efforts to increase the perfection of the Dental art, as well as to alleviate human suffering, and hope that they will result in the

great advancement of both your own interest, and the welfare of your fellow men.

Very respectfully,  
Yours, &c.

JUSTIN EDWARDS.

Washington, Feb. 5, 1849.

(From Report of Committee on Dentistry, at Mechanics Fair, Worcester, 1848.)

A set of teeth were shown by Dr. Morton, which were not only carved in a very handsome manner, perhaps faultless, having the particular merit of sustaining the harmony of proportion to the last teeth of the jaw, and giving a peculiarly natural appearance of the gum and jaw in that part, but were articulated together in the most perfect manner. Other specimens were presented by the same, showing great variation of style and material of teeth.

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## OPINIONS OF THE PRESS.

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**GOLD PLATE WORK IN DENTISTRY.** Those who are interested in the onward progress of the mechanical part of dentistry, will read the communication from Dr. Morton, in the Journal of May 23d, with much satisfaction. We recently examined a specimen of the beautiful philosophical contrivance referred to, by which a plate, fitted to the roof of the mouth actually sustained a weight of ten pounds, by the mere pressure of the atmosphere. If it is an old principle, it is certainly a very admirable one, which in this particular application commends itself at



sight. If our operators would obviate the swaying, sliding movement which the tongue, in an imperfect cast of the region, gives to an upper set of artificial teeth, they would at once be influenced by the suggestions contained in this article. Dr. Morton deserves the thanks of practitioners and the public for this improvement in the practice of dentistry'—*Boston Medical and Surgical Journal*.

'The publisher of this paper would bear testimony to the successful operation of this invention, having on a recent occasion tried with his own hands to remove one of these plates, and found himself unable to do it without applying more strength than he deemed prudent, though requested so to do. The opinion of the conductors of the Medical Journal, as to the importance of this invention will be confirmed by the following quotation from a letter lately received by the proprietor of the Christian Register from a highly respectable gentleman in Vermont, to whose wife a set was applied.

The manner of fitting gold plates for the insertion of teeth by Dr. Morton, as witnessed by you the other day, was recently put to a very severe test. A staple was soldered to the plate before it was inserted in the mouth, and the following weights were raised upon the patient's erecting the head, after a string had connected them together, without detaching it from the jaw. First, 1 lb—2d, 2 lbs—3d, 5 lbs—4th, 7 lbs—5th, 10 lbs.—No heavier weight was attached as it was feared it would irritate the jaw too much.' *Christian Register*.

'The simplicity of the operation is only equalled by its beautiful and satisfactory effect. It would hardly

be credited that a metallic plate, by being simply placed in contact with the palate, and unassisted by wires, rivets, or any sort of fastening, would adhere so firmly as not to be removed by a force nearly sufficient to draw a tooth. We chanced a few days since to be a witness of the surprising tenacity with which one of these plates kept its hold. As a matter of curiosity in pneumatics, we attempted to remove it immediately after it had been applied, and found that it resisted all the strength which we deemed safe to apply in experimenting upon the human body.'—*Bos. Courier*.

**GOLD PLATES IN DENTISTRY.** We have witnessed a very perfect contrivance recently effected by Dr. W. T. G. Morton of this city, by which gold plates are adapted to the roof of the mouth, so that an upper set of teeth is retained in its place without the aid of rivets or appliances of any kind, by the simple power of atmospheric pressure. So firmly was the plate attached by this process, that we could not by a strong pull with one hand detach it from the mouth of the subject. The tenacity is such, that the plate sustains a weight of many pounds without losing its hold. The process is as beautiful as it is simple."—*Daily Evening Transcript*.

' We had an opportunity a few days since, of examining the adaptation of a gold plate to the roof of the mouth of a young lady. It was done by Dr. Morton of this city, and reflects the highest credit on his skill, as a practical and scientific dentist. The plate was fitted with the most perfect exactness, and retained in its place with the greatest firmness, upon the principle of atmospheric pressure. Dr. Morton has succeeded perfectly in calling into requisition the

element in which we live and move, to aid in thus supplying a defect of nature, upon a very simple, and at the same time, ingenious process. He deserves the thanks of the community for this successful practical application of his philosophic mind to the alleviation of the misfortunes of his fellow beings; and it adds another laurel to his brow as a benefactor of mankind.'—*Boston Atlas*.

We refer to a new modification of the principle of atmospheric pressure, for the purpose of retaining plates for the insertion of artificial teeth. The advantages of Dr. Morton's plates are that it may be applied in all cases, that its adhesion is immediate after application; that no ordinary cause can detach it, as it will bear a weight of eight or ten pounds without separating."—*Boston Weekly Journal*.

'GREAT IMPROVEMENT IN DENTISTRY. Dr. W. T. G. Morton, of this city, has after repeated experiments succeeded by a new philosophical application of the principle of atmospheric pressure, to hold the gold plate so firmly fixed in its position in the mouth that it will sustain a weight, according to the testimony of the *Boston Medical Journal*, of ten pounds. This improvement will obviate the great inconvenience which has hitherto been experienced during the process of mastication. We can testify to the value of this improvement by our own personal examination of the application of one of these plates."—*Christian Alliance and Family Visitor*.

Dr. Morton has resumed the practice of his profession, and we trust that the patronage of the public will help to repay him for the sacrifices he has made to their good. The great attention which Dr. M. has devoted to the manufacture of artificial teeth, and to their adjustment in the mouth, place him among the very first of our dentists.—*N. E. Puritan*.

**DENTAL SURGERY—DR. MORTON'S LETHÆON.**—This afternoon (Tuesday) a member of our family, who has suffered much from her teeth for many years, was induced to inhale Dr. Morton's ethereal vapor. In two minutes she was in a state of profound insensibility, and in three minutes more, *fourteen* deeply and firmly set teeth were scattered upon the floor. She has seven or eight more to be removed, and says she now feels no reluctance to the operation whatever.

The agent which has been introduced to the public by Dr. Morton, and in whose hands it is skilfully used, promises to pluck the deepest pang from human suffering, and to rob even surgery itself of much of its horror.

We cheerfully bear testimony to the humane feelings exhibited towards patients under Dr. Morton's care, and to the lively and attentive sympathy manifested in their behalf.—*Boston Christian Alliance.*

**PROGRESS IN THE ART OF DENTISTRY.**—The ingenuity of our most skilful dentists is kept on the *qui vive* by rival efforts to make improvements in their profession, which is one of considerable importance in this masticating world. Several new inventions have been announced lately. Dr. Morton, No. 19 Tremont Row, has been particularly successful in contriving gold plates for the support of artificial teeth, and has given the most perfect satisfaction in some recent operations of a very difficult nature. The gold used by him, instead of solder for uniting the plates, is twenty carets fine, and can never prove detrimental to the teeth, affect the breath, or impart a metallic taste. These are highly important desiderata in the art.—*Boston Post.*

Among the articles of Dentistry, are some beautiful sets of artificial Teeth, exhibited by Dr. Morton. They are some of the finest specimens we have ever seen, and seem to be the very *beau ideal* of perfection in mechanical dentistry. The tints of the teeth and gums, and their conformation, are all so true to nature, that a savage would hardly doubt that they were cut bodily from the living subject, especially if he should see the motions of mastication regularly kept up, as in one of his specimens. We were aware that Dr. M. had been at great pains to attain to the utmost that mechanical dentistry is capable of, and we have here a fair illustration of what his skill and execution have accomplished. When we add to this the recollection that it is to this same gentleman we are indebted for giving to the world that most beneficial discovery in medical science, of modern, or, perhaps, any times—the other, we cannot

but think that the best our citizens can do, is to extend to such a man the most liberal individual patronage. Dr. Morton's office is at 19 Tremont Row.—*Boston Atlas*.

**MECHANICS' FAIR.**—The Mechanic's Fair exhibits several specimens in mechanical dentistry which are in the highest degree creditable to the advancement of that branch of art in our city. We have inspected them, particularly those bearing the name of Dr Morton, (well known in connection with the discovery of ether,) which seem to us consummate pieces of mechanism. From inquiry made at the Hall, we learn that the process of mastication, as exhibited in one of his specimens is not a mere matter of show, as we had supposed, but is the operation of an ingenious invention of Dr M's, the purpose of which, as partly indicated by its name, the **DENTOMETER**, is to give a degree of accuracy not otherwise attainable, to the proper proportions and adjustment of the artificial teeth, so that their action shall exactly correspond to that of the natural set. The entireness of the sets in this case, being free from piecing and their being completely furnished with gold mountings, seemed to us to constitute a distinguishing feature in the character of this work. Dr. Morton's office is at 19 Tremont Row.—*Boston Mercantile Journal*.

**MECHANICAL ART.**—In Dr. Morton's specimens this is particularly to be remarked. The slight variations in color between different teeth, or shadings in the same tooth, and the set of the gum upon the tooth, are given with such truth, that the wearer of such, we suspect, might go through life in a broad laugh, without the genuineness of his teeth being suspected, whatever might be thought of his brains. From the state to which artificial dentistry is brought, in his specimens, and from the accounts which have been before the public, of his agency in demonstrating the peculiarities of ether, and making it known to the world, it is evident that Dr Morton is a man determined not to stop short of a well-earned success in what he undertakes. The public have personal interest enough in him to wish him a hearty success, knowing as they do, the amount of human suffering which has even already been relieved through his courage and perseverance in the ether discovery. Dr. Morton's office is at 19 Tremont Row.—*Boston Courier*.

**DIFFICULT OPERATION.**—Dr. Morton, No. 19 Tremont Row, has recently performed successfully, a very difficult operation on a young lady, the effect of which, the publisher of this paper has had an opportunity of witnessing. The Transcript gives the following description, which we have adopted. "The nature of the case was a cleft palate, triangular space, extending from the

alveolar process of the incisors through the roof of the mouth into the nostrils, the posterior portion of this space being an inch and a half in width. There was a deficiency also of the soft palate, the lateral part of the velum wanting, also an opening through the anterior portion of the superior maxillary bone at the symphysis. To remedy this defect, a gold plate was fitted, covering and occupying the space. To the posterior part of this, a flexible palate was adapted to supply the place of the deficient organs. This operation proved entirely satisfactory to the young lady operated upon, which will enable her to speak and articulate distinctly. The mechanical part of the work was most beautifully executed."—*Boston Christian Register*.

**THE MECHANICS' EXHIBITION.**—Who would be apt to believe, as he stands before the curious moving jaws, furnished with fac-similes of nature's dental work, which Dr Morton has contributed as his quota, that the earth had been dug for the mineral materials which compose them? In those experiments which have given to the world the most famous medical discovery of the age, the ether, we are here furnished with the best assurance that Dr. Morton has not lost sight of the highest excellence in the strictly mechanical branches of his calling. For a perfect copy of nature, in the arrangement, hues and easy action of artificial teeth, we think Boston may, in these specimens, challenge competition. Dr. M., we should say, was not only entitled by his great discovery to the gratitude of every man who is liable to pain, but, by these preparations, so far as we can judge of such things, to the patronage of every one and they are not few, who is afflicted with the loss of teeth. Dr Morton's office is at 19 Tremont Row.—*Boston Post*.

If any one who wishes a handsomer working set of teeth than that which is eating away at some invisible provisions in Dr. Morton's case of specimens, we have only to say, that he is very unreasonable. Not content with a discovery by which one's teeth can be taken out without his knowing it, he will put in a set which may be worn with equal unconsciousness. There is an exquisite finish about the teeth and their fittings which foreign competition can hardly surpass. Judging from these specimens, one need not go beyond 19 Tremont Row for his ivory.—*Mass. Ploughman*.

**ETHER.**—The realization of such an object, cannot but rebound to the great merit and reputation of the discoverer, Dr. Morton of Boston, America, and to the honor of the profession to which he belongs.—*London Lancet*.

Forasmuch as many have taken in hand to relate their experience, it seems good unto us,—having had personal knowledge of the matter,—to make known our experience for the benefit of those who, having suffered as we have and seek relief, may have confidence in our report.

Well, tooth-pulling is the subject of our story. It is now more than twenty years since,—having had tooth after tooth extracted, and jaws broken times without number,—we formed a resolution that no dentist should ever again make a demonstration of his strength upon our jaws—suffer as we might with that most excruciating physical torment ever inflicted upon sinful mortality, the *toothache*. Firm and constant in our resolution, we have endured toothache—*not patiently*—we are not quite philosopher enough for *that*;—teeth have ached, decayed, and broken off, leaving their misbecoming stumps and roots to plague their owner, in return for his unshaken constancy. But all men have their frailties, and the fame of Dr. Morton's successful application of sulphuric ether in the practice of his profession of tooth-drawing, at length made an assault upon our inflexibility, and we began, like Macbeth, "to pall in resolution." Disregarding all advice to the contrary—advice founded on the presumption that the inhalation of ether would produce some diabolical consequences—we permitted Dr. Morton to apply one of his conical sponges to our mouth for about three minutes, and, in as many minutes more, TEN of the above mentioned snags, stumps, and roots, most of which had been previously broken off even with the gums, had changed their position, which they had maintained in our jaws through a period of sixty years, for a more enlarged and sightly one on Dr. Morton's table.

Some readers may think this statement extravagant, or intended as a pleasant piece of waggery. If so, they do us wrong, and Dr. Morton wrong. It is literally and positively true; and the whole operation gave us not so much pain as we have received from the pricking of a pin. If any one is incredulous, let him try the experiment, and if he should not then heartily confirm our statement, we shall think him a less fortunate man. We are so entirely satisfied with our personal experiment, that we deem it a duty to the man who has first successfully used ether as an alleviator of the pain of surgical operations, and an act of kindness to our fellow-men, to recommend to all, who suffer as we have suffered, to *go and do likewise*. Dr. Morton's office is at 19 Tremont Row.—*Boston Courier*.

*From Professor Bigelow to Dr Boot, concerning the Ether discovery.*

The inventor is Dr. Morton, a dentist, of this city.

*From Prof Hayward, Mass. Med. College.*

The first successful application of sulphuric ether, was made here in September last, by Dr. Morton, a distinguished dentist. To Dr. Morton I think must be awarded the credit of being the first who demonstrated, by actual experiment on the human subject, the existence of this wonderful property.

*From Dr. J. V. C. Smith, Port Physician.*

**IMPROVED DENTISTRY.**—Dr Morton, an ingenious dentist in Tremont Row, in this city, has recently executed some extraordinary specimens of dental ingenuity, which makes it a difficult question to decide which *looks* the best—nature's work or his!—*Boston Medical and Surgical Journal.*

A very delicate and successful operation was performed recently by Dr. Morton, of Boston, on a young man, which is thus noticed in the Post, of that city.

The nature of the case was hair lip, cleft palate, deficient palatine arch, and the nasal septum, posteriorly running down anteriorly to a small nipple-like cartilaginous projection. That portion of the superior maxillary bone between the *caspidati* was entirely wanting. After the above description, the hideousness of the deformity and want of articulation may well be imagined. Without giving a minute description of the operation, suffice it to say, on introducing the piece of mechanism into the mouth, the young man is made almost a new being, and is able to articulate nearly all the alphabet, and where vacuity was to be seen, we now behold the pearly lustre shining forth in every smile. It is astonishing to what degree of perfection art and science have arrived in supplying the deficiencies of nature, or those caused by accident or age. Here is a young man with a whole upper row of teeth, and an entire new roof to his mouth, so ingeniously and naturally placed in his head as to afford him all the advantages derived from those parts in a perfectly formed mouth, and this too, without inconvenience. Dr. Morton's office is at 19 Tremont Row.—*Baltimore Commercial Advertiser.*

**EXTRAORDINARY OPERATION.**—We are happy to notice an operation performed by Dr. Morton, dentist, No. 19 Tremont Row. The patient was a lady about thirty years of age, who had lost all of her teeth in the upper jaw, and visited the city for the purpose of having them supplied. On inquiring of her friends who to get to perform the operation, she was referred to one of the oldest and most celebrated dentists in the city, who told her she could not have the teeth put in on the atmospheric principle; and feeling a great aversion to having her mouth



lumbered with the machinery of springs, she determined to return home without accomplishing her object. By [the advice of a friend, however, she was induced to call on Dr. Morton, at whose office, to her great delight, she had a whole set of teeth inserted upon the atmospheric principle in a few hours after she took her seat for the operation. Instead of its being found impossible for them to be supported on this principle, a four pound weight was attached to the plate and raised from the floor, the plate remaining firm in its place. The patient can be seen, and will, with others who saw the operation, testify to the facts.—*Boston Post*.

Dr. Morton, a dental surgeon at Boston, appears to have been the first to make use of this agent, the letheon, as a means of relieving pain during surgical operations, and he soon acquired great and just celebrity in that city, by extracting teeth, without the patients, who had previously inhaled the ether, being conscious of the operation.—*Dublin Quarterly Review*.

**DENTISTRY.**—We were much gratified with a visit a few days ago, to the rooms of Dr. Morton, No. 19 Tremont Row. The toothless are there supplied with complete sets of teeth, inserted on a new principle, and sustained in their place by atmospheric pressure, so firmly that several pounds may be raised by them without removing the plate, which is made, as well as the solder, of the best of gold. In this way, many persons have been enabled to wear teeth with comfort, who had given up all hope of any assistance of this kind.

Dr. Morton has studied the dental art thoroughly, and on strictly scientific principles. He has in his possession the finest anatomical preparations, illustrative of the structure, positions, gradual development, and decay of the teeth, which we have ever seen, imported from Paris expressly for his use. He was lately called upon to perform a very difficult and peculiar operation in the case of a young man of twenty-three years of age, who was born with a hair lip, and without a palate; so that it was entirely impossible for him to articulate. He was fitted with an artificial roof of the mouth, palate, and front teeth, both removing the hideous deformity, and giving him the faculty of articulation.

It is highly gratifying to witness these triumphs of an art intimately connected with health and comfort. Dr. Morton has extensive facilities for the preparation and insertion of whole sets of teeth.—*Boston Christian Watchman*, edited by Rev. W. Crowell.

*From the London Lancet, in alluding to the Ether.*

The discovery of Dr. Morton, the hitherto unknown dentist of Boston, more striking to the general than to the scientific mind, will, undoubtedly, be placed high among the blessings of human knowledge and discovery.

**DENTAL SURGERY.**—Without wishing to detract from the merits of any of the regularly educated surgeon dentists of this city, we would call the attention of the public to a scientific gentleman, in whom entire confidence may be reposed, to perform, in an elegant manner, any operation that may come under the cognizance of a dentist. We are led to these remarks by having had an opportunity, recently, of examining the most perfect and beautiful set of teeth, for the upper and under jaw, that ever fell under our observation. They were made and inserted a short time since, by Dr. Morton, 19 Tremont Row, (whose skill has often been employed in more complicated cases,) for a lady, who wears them with perfect comfort. The teeth are inserted upon a plate, which is said to be superior to any other in general use. The contrivance which supports the teeth in the mouth, is extremely ingenious and scientific, and deserves marked attention by those interested. The teeth, and all that portion of the jaw which was absorbed away by the loss of them, was carved so as not only perfectly to restore the countenance to its natural form, but rendered them much firmer, more cleanly than single teeth, or even those in blocks of three or four. Improvements of this nature are valuable, and should be made public, that the afflicted may be benefited thereby, by availing themselves of the skill that Dr. Morton is able to apply, after many years of practice and experiment.—*Boston Evening Transcript.*

We would now call attention to the improvement introduced in the working of the teeth, tested by their manner of closing in the motions of the jaw. In the case marked "Morton & Whitman," of this city, there is a peculiar neatness exhibited in this mechanical contrivance. We understand this is the object of the machine, and that it is relied upon to detect any inaccuracy in the relative positions of the teeth, by their manner of closing, as compared with nature. The gold work also struck us as peculiarly complete and workmanlike. With this new invention of the 'dentometer,' as we are told it is called by Dr. M., added to all the other previous advantages of dentistry in their highest degree, we should suppose he would be as much in the mouths of men, through his works of this description, as by the discovery of the ether. Dr. Morton's office is at 19 Tremont Row.—*Boston Saturday Rambler.*

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