

Allen (J.)

TEETH.

AN IMPROVED METHOD

OF

CONSTRUCTING

Artificial Dentures.

COMBINING FIVE IMPORTANT POINTS NOT
HERETOFORE ATTAINED.

TOGETHER WITH DIRECTIONS FOR THE DEVELOPMENT AND
SUBSEQUENT PRESERVATION OF THE NATURAL TEETH.

BY DR. J. ALLEN,

(LATE PROFESSOR IN THE OHIO COLLEGE OF DENTAL SURGERY.)

22 30 BOND STREET, N. Y.



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ERRATA.

On 5th page, tenth line from the top, read rugæ for *ruga*.

On 12th page, eighth line from the top, read rugæ for *ruga*.

On 14th page, in eleventh line, read caste for *cast*.

On 14th page, in nineteenth line, read equity for *equality*.

On 24th page, in seventeenth line from top, read cuspidati for *cuspidata*.

On 27th page, in sixth line from the bottom read chloroform for *cloriform*.

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District of New York.

DR. J. ALLEN'S
Improvement in Dental Surgery

RESTORING THE CONTOUR

OF THE

FACE



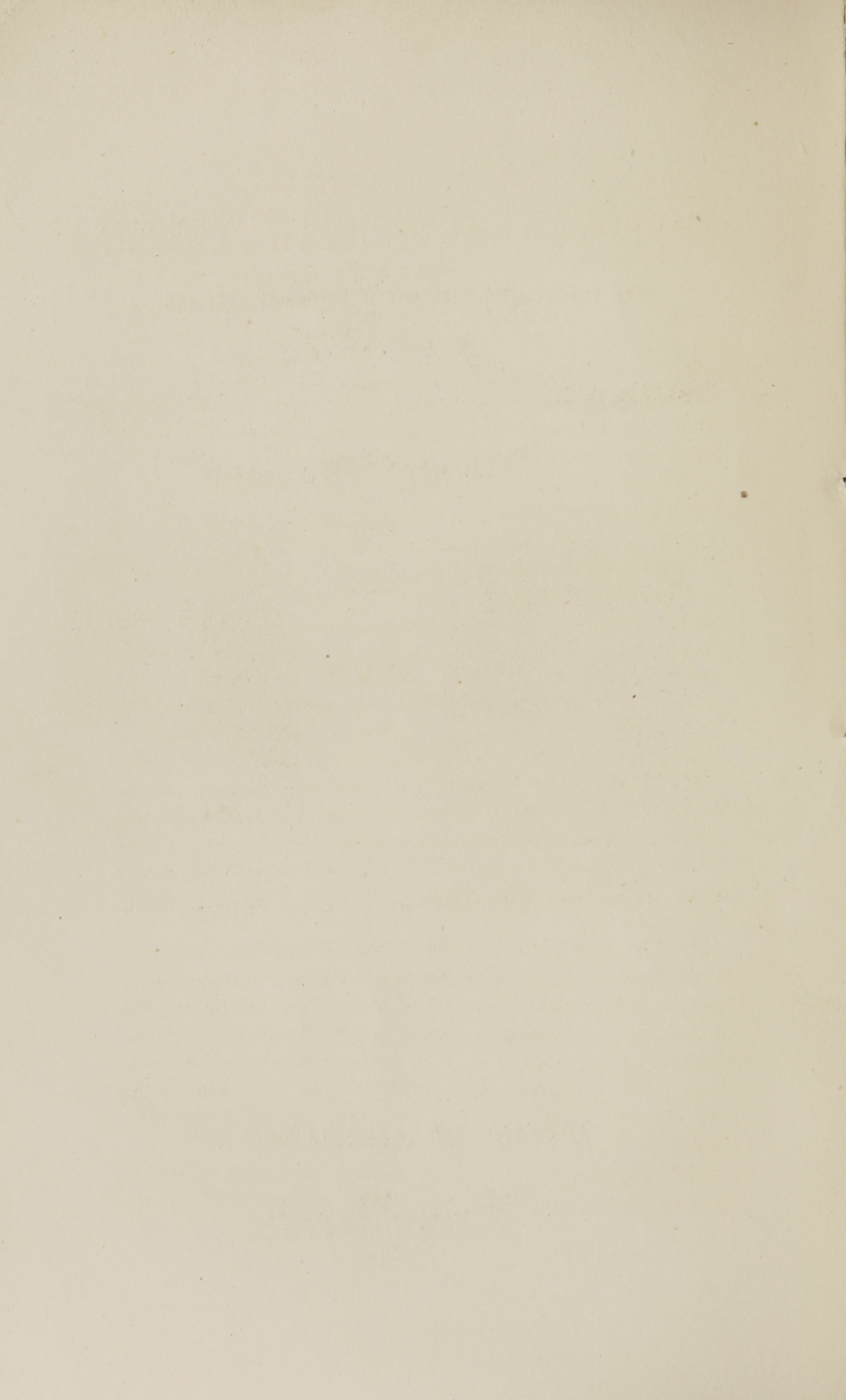
THE ABOVE PORTRAITS REPRESENT THE SAME FACE - ONE WITHOUT THE IMPROVEMENT, THE OTHER WITH.

By this improvement the form of the face can be restored to any degree of rotundity that may be desired. It is applicable in all cases where the cheeks have fallen in, and cannot be detected by the closest observer.

OFFICE NO. 30 BOND ST.

New York.

Jas. O'Elyn, Engraver, 176 Broadway N.Y.



PART FIRST,

IMPROVED ARTIFICIAL TEETH,
COMBINING
FIVE IMPORTANT POINTS NOT HERETOFORE ATTAINED.

More than two thousand years have elapsed since artificial teeth were first worn by man, during which time dental science has been gradually developing and approaching nearer perfection.

The combined skill and experience which have been accumulating in the dental art during this period, brings to our aid well attested principles, by means of which we are enabled to approach still nearer the culminating point.

The improvements herein referred to consist—

1st. In having the teeth garnished with an indestructible artificial Gum, Roof, and Ruga of the mouth without seam or crevice, with all the delicate tints and shades peculiar to those of nature.

2d. The sunken portions of the face are restored to their original fullness, thus rejuvenating the waning cheek, which cannot be done by the usual mode of inserting artificial teeth.

3d. The inside of the teeth and gums have the same form as the natural organs; to this form the tongue is readily adapted, and the enunciation becomes clear and distinct.

4th. A truthful expression is given to the teeth and mouth which make them appear in perfect harmony with the other features of the face.

5th. No metal plate can be seen in gaping, laughing or speaking, for the teeth are firmly set in the artificial gum, which also covers the plate and represents the natural roof. This gum consists of a silicious compound which is applied and fused upon the teeth and plate in such a manner as to fill up the interstices around the base of the teeth, and unites them firmly to each other, and to the plate upon which they are set. Hence there can be no foul secretions to vitiate the saliva or infect the breath.

The importance of a sweet and healthy mouth will be readily perceived in view of the fact, that the food which is taken into the

system is moistened with the saliva ; and if this be vitiated, either from an unhealthy condition of the salivary glands, or by contact with filthy dentures, it exerts a baneful influence upon the stomach and alimentary canal, and impairs the general health in a greater or less degree. A pernicious effect is also produced upon the system by inhalation. A person inhales atmosphere 20,000 times every twenty-four hours. If this becomes polluted by the fœtor, which is constantly being emitted from impure dental organs, (either natural or artificial,) it does not impart to the system that invigorating principle which promotes health.

The object of respiration is to convey fresh atmosphere to the lungs for the purpose of arterializing the blood. If the atmosphere be impure, the blood will not be purified ; in consequence of which, the blush of the rose leaves the cheek, and the hue of the sear and yellow leaf takes its place.

Again, the exhalations, from persons whose mouths are not in a sweet and healthy condition, renders them offensive to others.

GREAT STRENGTH.

The teeth being united to each other at their base, and to the plate upon which they are set, acquire a greater degree of solidity and firmness, than when disconnected ; and no ordinary force, in masticating, can break the teeth from the plate, if the dentures be properly made.

RESTORATION OF THE FACE.

This method of constructing artificial dentures, combines, with great advantage, another important feature, which consists of additional attachments to the dentures *for restoring the form and natural expression of the face*, in cases where the muscles have become sunken, or fallen in from the loss of the teeth and consequent absorption of the alveolar processes. These attachments are so constructed as to become permanent fixtures, or component parts of the denture ; and of such form and dimensions, as to bring out each muscle or portion of the face which may have become sunken, to its original position ; and when rightly formed, cannot be detect-

ed by the closest observer. By this means, the natural *form and expression of the face* can be preserved through life. The necessity for these attachments arise from the fact, that there are in many instances two important points to be attained ; one is, *permanence of the teeth* ; the other, *restoration of the features*, both of which cannot be effected by simply inserting the teeth.

In order that artificial teeth may be useful for masticating, they should be placed upon the plate and articulated in such a manner as to have the pressure in chewing come upon the inner rather than the outer margin of the alveolar ridges. This position of the teeth will prevent the plates from becoming dislodged from one side, while chewing upon the opposite, and secures permanence in mastication.

If the teeth are placed far enough out to restore the muscles of the face to their original fulness, they will in many cases prove useless for masticating food.

THE FACE,

Is formed of different muscles, which give it shape and expression. These muscles rest upon the teeth and alveolar processes, which sustain them in their proper position.

When the teeth are lost, and a consequent absorption of the alveolus takes place, the muscles fall in, or become sunken in a greater or less degree, according to the temperament of the person. If the lymphatic predominates, the change will be but slight. If nervous sanguine, it may be very great.

There are four points of the face which the mere insertion of the teeth does not always restore, viz : one upon each side, beneath the malar or cheek bone ; and one upon each side of the base of the nose, in a line towards the front portion of the malar bone.

The muscles situated upon the sides of the face, and which rest upon the molar or back teeth, are the Zygomatic Major, Masseur, and Buccinator. The loss of the above teeth causes these muscles to fall in.

The principal muscles which form the front portion of the face

and lips are the Zygomaticus minor, Levator labii superioris alæque nasi and Orbicularis oris.

These rest upon the front, eye, and bicuspid teeth; which, when lost, allow the muscles to sink in, thereby changing the form and expression of the mouth.

The insertion of the front teeth, will, in a great measure, bring out the lips, but there are *two muscles* in the front portion of the face which cannot, in many cases, be thus restored to their original position; one is the Zygomaticus minor, which arises from the front part of the malar bone, and is inserted into the upper lip above the angle of the mouth. The other is the Levator labii superioris alæque nasi, which arises from the nasal process and from the edge of the orbit above the infra orbital foramen. It is inserted into the ala nasi or wing of the nose and upper lip.

The attachments before mentioned, applied to these four points of the face, beneath the muscles just described, bring out that narrowness and sunken expression about the upper lip, and cheeks, to the same breadth and fullness, which they formerly displayed, thus restoring the original pleasing and natural expression. These attachments for restoring the form of the face were first constructed by the subscriber, some twelve years since, and they have been constantly worn by various persons with ease and comfort ever since that period.

Here, the artistic skill of the dentist is brought into requisition. He should study the face of his patient as the artist studies his picture, for he displays his genius not upon canvas, but upon the living features of the face; and of how much more importance is the living picture, that reflects even the emotions of the heart, than the lifeless form upon canvas. He should know the origin and insertion of every muscle of which the face is formed, and what ones he is to raise, and where to apply his attachments; otherwise, he may produce distortion instead of restoration, by allowing them to underlay other muscles than those intended to be brought out.

If these attachments are rightly formed and properly adapted, they cause no discomfort in wearing, or impediments in eating, speaking, or laughing.

If skill and judgment have presided over all parts of the operation, the result will be highly pleasing and of practical utility.

EXPRESSION OF THE TEETH.

In order to produce a pleasing and natural expression of the teeth, they should be in perfect harmony with all the other features. It is not always the most beautiful and symmetrical artificial teeth which appear best in the mouth. On the contrary, slight irregularities often appear the most natural. The teeth give character to the physiognomy of persons ; therefore, as great a variety of expressions should be given to them as there are individuals for whom they are intended. Those of bold and strongly marked features require prominent and irregular teeth ; persons of thin small visage should have small convex teeth ; and a broad full face should have larger teeth, with less convexity. If the teeth are set very true and even, they will appear stiff and mechanical, and serve as a walking advertisement for the dentist who inserted them. There should be a graceful irregularity in most cases, so that each tooth may display its natural individuality.

Inattention to these important points, will defeat one of the main objects sought to be attained by artificial teeth. By way of illustration, we will direct the minds' eye to a set of teeth in the mouth of Miss W. ; you need not be told they are artificial, for the first glance reveals the fact, which is extremely mortifying to her and her friends, for she is by nature and education a lady of taste and refinement. With one exception, (her teeth) her features are classic, her manners gentle and engaging. But the ruthless hand of time or disease has robbed her of one of the brightest ornaments of the face, for there is no feature in which there is more expression, or that commands more admiration, than a comely set of teeth. But from her they are gone forever, and like brilliant gems rudely taken from the casket, there is only left, the marred relics that contained them.

An attempt has been made, as you see, to restore her loss by artificial means, but the artist was not there, for there is a total want of natural expression. In order to avoid this defect, there

are several points to be taken into consideration, viz : the length, the size, the shade, and the position of the teeth.

The length should depend upon the width of the lips that are to cover them, and the degree of absorption of the alveolar ridge. If the teeth are too short the muscles which connect the jaws become contracted, which brings the nose and chin into closer proximity with each other ; and when closed the lips are compressed or protruded, which changes in a greater or less degree the form and expression of the mouth, and other portions of the face.

If too long they exhibit a ghastly look, and the lips will not close over them without a muscular effort which produces distortion. As a general rule the front teeth should be long enough to display their points, or cutting edges, a little below the upper and above the under lip, when in their natural position. The side and back teeth should be of such length as to allow the lips to come together without compression or distortion ; this will give to the face its due proportion of length, and display a pleasant expression of the teeth. The size of the teeth should bear a due proportion to the other features of the face. The shade should harmonize with the complexion of the person for whom they are intended. If they are too white, they exhibit a glaring unnatural appearance, which tells they are artificial. If too dark, they will not appear sweet and healthy. They should be a little darker next the gum than at the points.

In short, there should be a harmonious blending of the shades of the teeth, gums, lips, and complexion.

Here the skill of the artist is also required, in order to avoid an unnatural contrast that would lead to detection.

The dentist who is a true artizan, is not ambitious to have his work bear the impress of artificial teeth, but on the contrary, that they should possess that depth of tone, natural form, and truthful expression which characterize the natural organs.

Varying the *position* of the teeth will change the appearance of the mouth, just in proportion as they differ from the natural teeth. Hence, in many persons, their former expression is almost entirely lost, and distortion has taken the place of symmetry

A want of taste and skill in the construction and adaptation of artificial teeth, results in rude and graceless work, which contrasts widely with that of the true artizan, who carefully studies the tone, position, and expression of every tooth, and restores the harmony which nature had originally stamped upon the features of his patient.

A few slight touches of the brush in the hands of a skillful artist, will change the whole expression of his picture. So with the teeth; a slight inclination, outward or inward, or variation in length, will change the entire expression of the mouth.

A CLEAR AND DISTINCT ARTICULATION OF SPEECH.

is another consideration of great importance, especially to a public speaker.

If an artificial denture be so constructed as to be unnatural in form, the tongue will not play upon it so as to produce distinct enunciation. Hence, the MUFFLED or hissing sounds which are often observed in speaking, singing, and conversation.

In the construction of a musical instrument (with reeds or tongues) the most perfect adaptation of the surrounding parts is necessary in order that each note should have a round, full, and clear tone; the slightest defect, in this respect, throws the instrument out of tune, and discordant notes are thus produced. So with the human voice. In order that the notes and words be clear, full, and melodious, a perfectly natural form should be given to artificial teeth and gums, that they may be properly adapted to the tongue.

For example, there is the Rev. Dr. D., whose voice, once so clear and audible, is now tame and indistinct; his enunciation has become laborious to himself, and painful to his hearers. The cause of this change is owing to the loss of his natural teeth, and the substitution of artificial dentures, which are so unnatural in form and adaptation that the tongue cannot articulate with them. To remedy this defect the form of the lingual surface of the teeth, gums, and roof of the mouth should be a perfect fac-simile of the original. Then the tongue can articulate clearly, and the worthy

divine can again pour forth his accustomed strains of eloquence without restraint.

We will now examine a full set of teeth, which combines all the requirements of artificial dentures. The plates are well adapted to the mouth of the wearer ; the teeth are properly arranged upon them and display a pleasant expression, the tone of the teeth are truthful in appearance, and are garnished with a continuous artificial gum, roof, and ruga of the mouth, without seam or crevice, which vie with those of nature.

The inside form is well adapted to the tongue, the sunken face rejuvenated, and the patient is now ready to exclaim " Richard is himself again !"

All these essential points can now be attained by this mode of constructing artificial dentures. But too much reliance should not be placed upon the *mode*, for however perfect this may be in itself, artistic taste, skill and judgement are necessary to direct the operator in his manipulations. Two artists (so called,) may employ the same method, use the same paints, brushes, canvass, &c., in painting a picture. One will produce a perfect prototype of nature, with all the delicate shades and tints peculiar to her art, which is considered almost priceless, while the other makes a mere daub that is worthless. The same difference exists among men in various other branches of art and science.

HOW LONG AFTER THE EXTRACTION OF NATURAL TEETH BEFORE AN ARTIFICIAL DENTURE SHOULD BE INSERTED.

From one to two weeks is sufficient time under ordinary circumstances. But as there is a difference of opinion upon this point, we will present the different theories, and submit to the reader their claims to supremacy. The objections urged to an immediate insertion of a denture are, that the gums will not become smooth and symmetrical if a plate be fitted to them before the alveolar processes have fully absorbed, but will conform in a greater or less degree to the irregularities of the plate and prevent a good practical result ; consequently, they advise their patients to go

without teeth at least one year. This theory we think erroneous, because the slight undulating surface of the gums which the plate may have occasioned presents no valid objection, for a permanent plate can be fitted to them just as perfectly at the expiration of one year, as if a temporary plate had not been worn, and the wearer will have become so well accustomed to artificial teeth that the second set can be worn and used at once, without difficulty. Again, the longer the natural teeth have been out the harder it is for a person to acquire the use of artificial substitutes, for the lower jaw is thrown forward of its natural position, the lips become compressed, the muscles of the mouth and face contracted, and the tongue habituated to certain movements in munching food which tends to dislodge the dentures when attempting to use them, and the original expression, in many instances is lost.

The advantages of an immediate insertion of artificial teeth after the removal of the old ones are :

1st. The patient will acquire the faculty of using them satisfactorily in much less time than if required to go without any teeth until the healing of the gums and absorption of the alveolar processes have fully taken place.

2d. The original expression can be much better preserved, as the denture prevents that compression of the lips and contraction of the muscles about the mouth and face, which the absence of the teeth will cause.

Temporary sets therefore should be inserted very soon after the removal of the old ones, and they should be as well made as permanent sets ; or as near as the nature of the case will admit, although there are those who seem to attach but little importance to temporary sets, as they are only to be worn a year or two, and this is deemed a sufficient apology for cheap poor work.

The price usually paid for temporary teeth will not justify the use of the best materials nor the highest degree of skill and taste in their construction, consequently there is in most cases a want of natural expression, utility and life-like appearance.

This we think an error that ought to be corrected, for in this way the patient has but a miserable substitute for the natural teeth, and is often subjected to extreme mortification at their rude

appearance, which becomes a favorite topic for criticism in the whole circle of the patient's acquaintance, nay more, whether in stage or steamboat, car or carriage, at home or abroad, they are spotted as artificial teeth. This ought not to be, it is a tale not to be told, for the keen eye of the gossip is ever watchful and ready to make capital of every passing event.

Artificial teeth should be above suspicion, not that there is anything wrong in having them, but there is a delicate sensibility on the part of many, who would rather reveal their own personal affairs (if need be,) than have others do it for them.

Again, the dentist often loses cast by making inferior work, for a poor specimen is often looked upon by others as a fair sample of the skill of him who made it. Although the inference may be very unjust, yet it tells against him. We think reform in this respect would prove mutually advantageous to the patron and operator.

equity
Instead of this cheap graceless work let the first set be as good as the second, and let the remuneration be based upon terms of equality, by charging more for the first and less for the second set, (if there must be an abatement in the price of either,) for the second will reflect the most credit upon the operator, and cause the least trouble. By this means the patient will be better served and satisfied than with a rude fixture devoid of all the essential requirements of artificial teeth.

There is taste and talent, science and art enough in the dental profession, if rightly employed, to construct artificial dentures so perfect as to elude detection, and it ought to be done, for with this system the highest degree of perfection can be attained.

By this method, in many instances, a second set is not required, for after the lapse of nine or twelve months the same set can be refitted to the mouth by knocking off the gum with a hammer, and then refitting the plate to a new cast just taken from the mouth, after which a new gum is applied to the same teeth and plate, which is solidified in a furnace, and is then more perfect in adaptation than when first made. The length of time required to do this is only about twenty four hours, and is attended with very

trifling expense, If a tooth by accident gets broken, it can be easily replaced at little cost.

Artificial teeth usually meet with stern resistance when first inserted, (especially full sets,) however perfectly made, for the tongue, muscles, glands and ducts all conspire to eject them from the mouth as unwelcome intruders. They seem not to have forgotten the old offenders that used to create such painful sensations in their neighborhood, until they were all exterminated, since which time there has been comparative peace.

But the sterner *will* can subjugate all these opposing forces and establish harmony, provided the dentures are rightly formed. The tongue will then acquire more cautious habits, and avoid those movements which at first would send them whirling out of the mouth, for the tongue does not like to be restrained. The muscles, ducts, and glands also require freedom of action, and they must not be impinged, then the teeth will be permitted to remain quietly in their places, and perform their proper functions. But still though artificial teeth be made never so well, there will be in many instances a stiff and restrained feeling and appearance that time only can remove, especially if the natural teeth have long been out ; but patience and perseverance will entirely overcome the difficulties that at first appear so formidable to a new beginner.

ONE WORD TO THE DENTAL PROFESSION.

The writer deems it proper to urge upon our brethren the great importance of bringing into requisition a much higher order of talent in the artificial branch of our profession, than has heretofore been employed by a large number of dentists whose ambition prompts them to do the cheapest, not the best work. This low ambition always has a downward rather than an upward tendency ; and will place its votaries where they are sure to be found, upon the lower platform of their profession, and are dead weights upon our fraternity, and do much to retard the progress of dental science. They will not tax *their genius*, for in their sphere it is not remunerative. They will not hazard expenditure to ascend

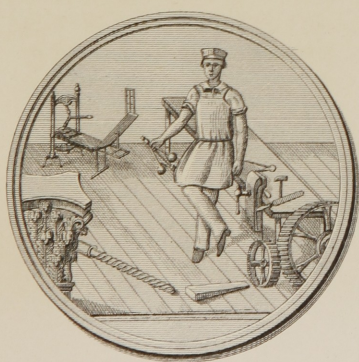
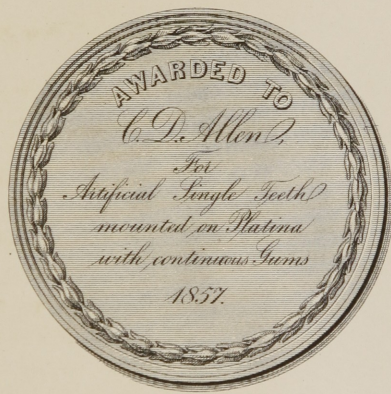
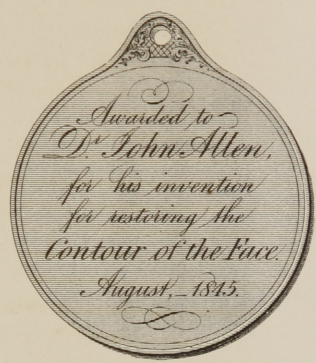
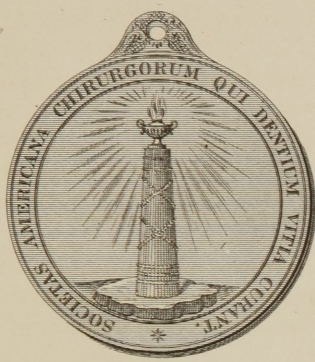
the hill of science, for it will not pay. They will not incur much expense in doing work, for their prices will not justify it. But the aspirant for the highest pinnacle of fame, that he may do the greatest amount of good, ignores such sordid considerations—he moves onward and upward. If he meets with obstacles he surmounts them. If discouragements and difficulties stare him in the face, he frowns them down, keeping his eye steadily upon the goal where he has placed his mark. He believes that what man can do he can. Nay, more, he believes that what ought to be done must be done, and he is going to do it. His restless zeal will not permit him to wait for some predecessor to do the pioneering, he does it himself, let the cost be what it may, or the labor never so much.

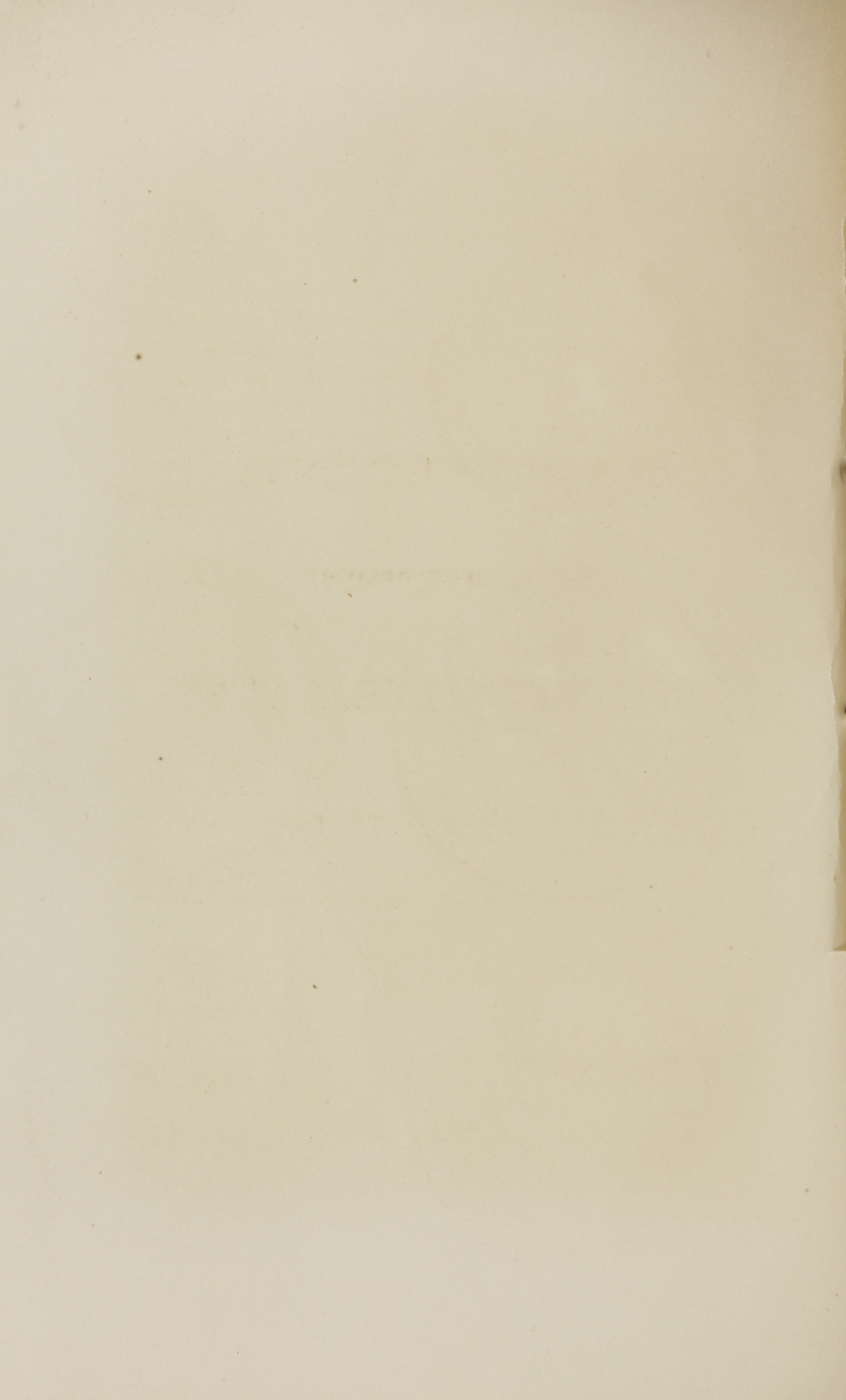
[From the *Dental Register of the West.*]

DR. J. ALLEN'S RESIGNATION AND REMOVAL.—We learn that Dr. J. Allen, who has enjoyed the confidence and patronage of this community, as a dental practitioner, for more than twenty years, is about establishing his business in the City of New York, at No. 30 Bond street, with a view of directing his exclusive attention to his improved style of work.

This change in his business operations has rendered it necessary for him to resign his Professorship in the Ohio College of Dental Surgery, a chair which he has filled with *ability and general satisfaction*; and we regret the necessity which impels him to leave the school. Our wish is, that he may meet with many friends and great success in New York, where most of his time will be likely spent. We can commend him to our brethren in New York, as a gentleman devoted to the Profession, courteous, affable, and obliging.

The following represent Gold and Silver Medals which have been awarded to D. J. Allen & Son.





PART SECOND.

ON THE DEVELOPMENT

AND

SUBSEQUENT PRESERVATION

OF

THE NATURAL TEETH.

DEPARTMENT OF THE NATURAL RESOURCES

1917

Annual Report of the Department of the Natural Resources
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DEVELOPMENT OF THE NATURAL TEETH.

Although artificial teeth when properly constructed are of great utility, yet the natural teeth, when in a sound and healthy condition, are far preferable.

In order to obtain a sound and well developed set of teeth, three prerequisites are necessary for their production and retention in the mouth.

1st. A good constitution. If this be frail more careful fostering will be required.

2d. Such food as contains the proper elements of *bone*, as well as muscle and fat.

3d. Cleanliness, so as to prevent any chemical or diseased action upon the teeth by foul secretions or vitiated saliva.

The constituents which enter into, and are embodied in the osseous structure of the teeth are as follows :

Phosphate of Lime with traces of Fluoride of Calcium,	66.72
Carbonate of Lime,	3.36
Soluable Salts,	0.83
Cartilage,	27.61
Fat,	0.40
Phosphate of Lime,	1.08
The enamel, or vitreous substance which covers the external surface of the crown of a human tooth is composed of	
Phosphate of Lime, and traces of Calcium,	89.82
Carbonate of Lime,	4.37
Phosphate of Magnesia,	1.34
Soluble Salts,	0.88
Organic substances,	3.39
Fat,	0.20

These constituents form the basis of the bones and teeth of a person. In order therefore, to produce a good osseous struc-

ture of the human frame, such articles of food should be used as contain a due proportion of these constituents, for such are the operations of nature in the animal economy, that when food is taken into the system it is duly apportioned and converted into muscle, bone, fat, &c. For this purpose the necessary materials of which our systems are formed exist in the proper nourishment designed for man. But by the present mode of preparing many articles of food, (some of which we will notice,) a large portion of the essential elements for osseous formations are taken out and discarded. For example, the wheat, rye, &c., of which bread is formed is stripped of the hull and coarser portions of the grain which constitute the requisite materials for bone, as deduced from the following well authenticated chemical analysis ; by which it is found that in 500 lbs. of whole grain there is

Muscle material,.....	78 lbs.
Of the fat principle,.....	12 "
Of the inorganic elements for bone, &c.,....	85 "
500 lbs. of fine flour contains	
Muscle material,.....	65 "
Fat principle,.....	10 "
Bone material,.....	30 "
500 lbs. of bran contains	
Muscle material,.....	none,
Fat principle,.....	30 "
Bone material,.....	125 "

The foregoing facts should teach the importance of using such food as contains the requisite elements for developing and sustaining a perfect organism in all its parts.

By close and careful scientific researches we have sufficient light upon this subject to serve as a guide which we should follow, for nature is so independent in the administration of her laws, that those who disregard or depart from them must abide the result. Food for children ought to be plain and substantial. Such as bread, milk, eggs, potatoes, rice, beans, &c. A child needs no meat under four years of age, and very little under twelve.

These constitute the principal articles of food necessary for a good development of the human system.

Adults require the same constituents to sustain the organization of the body that the young do to produce it, otherwise deterioration and decay ensue. More meat may be used as persons grow older.

Bread, the staff of life, should be made of flour with a goodly portion of the hull of the grain left in it, as the proper element for the elaboration of bone; for we need not expect well developed teeth unless the necessary constituents are furnished with which to form them.

Condiments possess none of the necessary elements for producing or sustaining a healthy organism.

Candies which contain poisonous substances, (as many of them do,) are detrimental. Many of the confectioners in coloring their candies, &c, employ the following materials. For their greens, they use Brunswick Green, Carbonate of Copper, or Arsenite of Copper. For their yellows Chromate of Lead or Gamboge. For their reds, Red Lead, Vermillion or cinnabar; and for whites, White Lead. All of which are deadly poisons. Although some confectioners use coloring ingredients comparatively harmless, such as Saffron, French Berries, Persian Berries, Fustic Wood, &c., for yellows. For red, Cochineal including Carmine, Brazil Wood and Madder. For blues, Litmus and Indigo. For greens, mixtures of any of the above vegetable yellows with Indigo. If the eye *must* be gratified as well as the taste in these matters, the latter colorings are far preferable to the former, but the purchaser of the candies can seldom tell the one from the other, therefore it is better to use them sparingly.

There are many articles of luxury used that are deleterious to the general health when indulged in too freely, (the less the better,) that do not act directly upon the teeth, but indirectly prove destructive, by producing vitiated secretions which affect them. Pure saccharine substances, when used moderately, are not considered injurious to the teeth, but when used in *excess* they become detrimental. When these are taken into the system they are converted into lactic acid. If this becomes predominant in the sali-

vary secretions it attacks the limy portions of the teeth, and thus produces decay.

CHILDREN'S TEETH.

A child has but twenty temporary teeth. Ten in the upper and ten in the lower jaw ; and these are all that are shed.

In a healthy and well developed child at the age of eight months there should be two teeth. At fourteen months eight or more teeth should have ruptured the gums. At two or two and a half years of age there should be ten in each jaw. These constitute all of the temporary teeth, and the only ones that are shed.

An adult person has thirty-two teeth, or sixteen in each jaw. The first permanent double teeth, as they are usually called, make their appearance from the fifth to the sixth year. The next are the two front teeth, above and below, called the front incisors, which appear from the sixth to the ninth year. The lateral incisors come next, then the first bicuspidæ, or small side teeth. The second bicuspidæ come next in order, then the cuspidata, or eye teeth. These usually appear at the age of eleven or twelve years, at which time the temporary teeth are all shed and replaced by the above named permanent teeth. From the twelfth to the fourteenth year the second molars, or large double teeth come, and lastly, between the age of eighteen and twenty-one the dentes-sapientiæ, or wisdom teeth, conclude the process of dentition. There are modifying circumstances which may vary the time when these different classes of teeth develop. We refer only to the general rule.

In well formed dentures the upper front teeth shut over or outside of the under ones. If the permanent teeth assume this position, although they may appear crowded in the child's mouth, yet as the jaw expands they gradually acquire a more regular form. But if any of the upper teeth are likely to shut inside of the under ones, then the aid of a dentist is required to avoid malformation.

Crooked or irregular teeth can be brought into their places if

properly attended to in time. This should be done when the temporary set are being shed, and the permanent teeth are taking their places. The front permanent teeth being much larger than the first were, often appear crowded, and many suppose the contiguous temporary teeth should be removed to give room for the second set. This may be right in one instance and wrong in another ; and it is well to consult an experienced dentist when the parent has any doubt about it, for if the first teeth are removed too soon it will increase the difficulty sought to be remedied, by causing a contraction which will leave still less room for the permanent teeth. If left too long they may force the permanent ones out of their proper places, especially if the fangs of the first teeth have not absorbed as they should have done. As a general rule the temporary teeth should remain in the mouth until the indications are perfectly clear that removal is necessary.

In most cases the fangs of the first teeth will have become absorbed and their crowns loosened, which is a sure criterion by which to be governed. They can then be removed with a strong thread, or some simple appliance without difficulty.

If the first teeth become decayed they should be filled, to prevent premature extraction. This should be done before the decay shall have reached the nerve, for killing the nerves of the temporary, endanger the germs of the permanent teeth, and an irreparable injury may be the result.

FILLING TEETH.

When a tooth has commenced to decay, it should be attended to at once. If it be but slightly effected the decayed portion may be removed and the place polished, which will in many instances arrest the decay, but if it has penetrated the tooth far enough to retain a filling, it should be plugged. This should be done before the decay has extended to the nerve, for if this has become exposed the tooth is liable to become painful, and may require removal. In many cases, however, the nerve may be killed, and the tooth afterwards filled, and still be useful for many years ; but the chances are against it, for it may become so diseased at

the root as to require subsequent extraction. Do not wait until the teeth become painful before having them repaired, for it may then be too late to save them.

Pure gold is the best material yet known for filling teeth. Other substances are sometimes admissible for temporary fillings, but for good permanent work, gold is the most reliable. Gold fillings have recently been found in the teeth of mummies, that must have been inserted more than two thousand years ago; and from that time to the present no other material has yet been found to equal it in point of durability for this purpose.

TARTAR UPON THE TEETH.

Is another cause of their loss, although it does not act directly upon the teeth, yet its effects upon the gums and alveolar processes produce absorption, and the teeth loosen and come out. To prevent this the tartar should be removed with small instruments, for it adheres so firmly to the teeth that considerable force is required to remove it. After this is done, if the gums have become affected an astringent lotion should be used, composed of

Tincture Myrrh, say.....	2 oz.
Tannin,	2 drams.
Rose Water.....	2 "
Water,.....	1 oz.

A teaspoonfull of this should be held in the mouth several minutes twice or thrice each day until the gums are well. This preparation will be found efficacious in all cases where the gums are diseased. A good dentifrice may be made of the following ingredients, which will be found to possess the requisite properties for cleansing the teeth and sweetening the breath.

Gum Myrrh,.....	1 oz.
Prepared Chalk,.....	1 oz.
Armenian Bole,.....	1 oz.
Orris Root,.....	4 drams.

These should be finely pulverized and thoroughly mixed, and kept dry for use with a brush.

TOOTH ACHE.

The proper remedy depends upon the source from which the pain proceeds. There are internal and external membranes connected with the teeth. An internal membrane, usually called the nerve, is situated within the crown of each tooth, and extends through the entire length of each fang. The external membrane is situated on the outside of each fang, and is called the periosteum.

When the nerve, or internal membrane is the seat of pain, it can be soothed and rendered painless in a few moments by the application of creosote with a small pledget of cotton, (not larger than the head of a pin,) gently applied so as not to press upon the nerve, then place another larger ball of dry cotton in the cavity, also, to prevent the first from coming out. Previous to the application all food or other substance should be carefully removed from the cavity.

To kill the nerve add to the creosote about the thirtieth part of a grain of arsenic, or double the quantity of cobalt ; let it remain in the tooth from six to eight hours, after which, if the application has been properly made, the nerve will be void of sensibility. This had better be done by a dentist or physician to avoid accidents. When the outer membrane is the source of pain no application made within the tooth, (as above,) will afford relief, for when inflammation occurs in this membrane the central one is generally dead. Many suppose that a tooth cannot ache after the nerve is destroyed. This is an error. The external membrane is rendered more susceptible to inflammatory action than before the destruction of the nerve, and is much more difficult to allay. Hence the frequent necessity of removing the tooth, for no palliative can be applied directly to the seat of inflammation. When the pain is severe it can be soothed by external applications. For this purpose camphor, laudanum, chloriform, or narcotized liniments may be used to advantage, for bathing the parts affected. Applications of this kind may afford relief for the time being, but there is no infallible cure except by removing the tooth.

Many cases of *supposed* neuralgia occur from a diseased condi-

tion of the teeth. When painful sensations are lurking about the sides of the head and face, the teeth should be examined, and in most cases the exciting cause can be traced to them.

ARTIFICIAL PALATES.

Artificial Palates have claimed the attention of the author for the last twenty-five years, during which time he has performed many operations of this class with the most gratifying results. Much can be done to ameliorate the condition of those who require assistance of this kind.

The limits of this little work will not admit of minute details upon the the suggestions here offered, as they are only intended as landmarks to guide the reader.

THIRTY-FIRST ANNUAL FAIR OF THE AMERICAN INSTITUTE, 1859.

We the undersigned judges on dentistry, appointed by the managers of the 31st Annual Fair of the American Institute, held at the Palace Garden in the city of New York, October, 1859, beg leave to report, that we have carefully examined the articles submitted to our inspection, and decide that No. 1,012 *is the best case* of improved dentistry exhibited for competition, but entered too late; a fact to be regretted, as the contributor, Dr. Allen, is justly entitled to the highest praise, not only as being the originator, but for having devoted many years of patient toil and study in perfecting that elegant and truly valuable style of work known to the profession as Continuous Gum on Platinum Plates. And the specimens exhibited by Dr. Allen are probably *equal*, if not *superior*, in artistic skill, to any ever manufactured in this or any other country. We would therefore most earnestly recommend this contributor to your especial consideration.

A. C. HAWES,
J. SMITH DODGE, } JUDGES.
T. W. BURRAS.

(From the *Scientific American*.)

Conspicuous among the many quite recent improvements in dentistry stands the construction of Continuous or Solid Gums for connecting the teeth with each other and with the plate, when a full set, or any considerable portion of a set is supplied, although the validity of the patent therefor has been and still is sharply contested. We believe those manufactured by Dr. John Allen of this city, composed of flinty substances which melt at a little less heat than the teeth, is the most popular for the purpose. The old process still in vogue with many dentists employs teeth having each a corresponding short portion of gum cast on them, ready for attaching to the plate; but the *really progressive* men in the profession are now adopting the continuous gum, on account partly of its *greater strength and superior appearance*, but mainly on account of its *cleanliness*. The *patched up sets*, made of teeth and gums in fragments are full of joints, forming cavities where food and saliva lodge and become offensive, unless cleansed with extreme care; and it is obviously impossible from their construction ever fully to cleanse the narrow and crooked fissures thus made.

Extract from the Proceedings of the Mississippi Valley Association of Dental Surgeons.

At the annual meeting of the Mississippi Valley Association of Dental Surgeons, held in the city of Louisville, Ky., it was resolved that—

“Whereas, Dr. J. Allen, of Cincinnati, has been for several years engaged in prosecuting a series of experiments, of which we have been *cognizant*, for the purpose of acquiring principles by means of which an artificial gum could be formed upon mineral teeth and metallic plates, in such a manner as to unite them firmly to each other, and therefore render more perfect the present method of setting artificial teeth on plate: And, whereas, the results of his experiments have been highly satisfactory to the members of this Association, as exemplified in the specimens he has exhibited. Believing it due to any member of our society who

devotes his time, money, and talents to the advancement of any particular branch of the profession, so that benefit may result therefrom, that some action or commendation from us is necessary :

“Therefore, in view of the great benefit which must result to the profession, and the public generally, from the indefatigable exertions of our brother, Dr. J. Allen, in producing a mineral substance by the use of which artificial teeth may be more perfectly placed in the mouth and made to resemble the natural organs of mastication :

“Resolved, that a committee be appointed to examine the specimens presented by Dr. A., and report to this meeting.”

REPORT.—“The committee to whom was referred the preamble and resolution, with the specimens as above, would offer the following report, viz :

“That they have examined the teeth cemented together, and to the plate, by Dr. Allen, and have subjected them to the following test :

“They have tried the strength, and believe that no ordinary force, such as used in masticating food, will loosen them from the plate ; there is greater solidity to the work, and no room for the lodgment of particles of food about the teeth, thus forming substitutes for the block-work, possessing all the advantages of block-work, with more strength, and greater security to the plate.

“They have subjected the gum to the action of nitric and sulphuric acids, and after the pieces had lain over night in the acids, they find no appreciable effect made on them, although the acids were in a concentrated form.

The committee are satisfied that this mode recommended by Dr. Allen, possesses cleanliness, strength, and, as far as we can judge, durability. The committee would remark, that in using this cement, the metals used by Dr. Allen is platinum and pure gold, and this greater purity of the metal, which more effectually resists the action of the secretions of the mouth, they regard as advantageous because it secures the public against the use of inferior gold in mechanical dentistry.

“In view of the labor and expense to which we are satisfied Dr. Allen has been subjected, in bringing this improvement to its

present state of perfection, and the advantage to the profession we think its adoption will insure, we therefore recommend the following resolution :

Be it Resolved, That Dr. Allen deserves all commendation for his indefatigable exertions in the developing and making available a new and important improvement in mechanical dentistry, and that we recommend this improvement to the profession as worthy of their attention.

“ JAMES TAYLOR, }
“ W. H. GODDARD.” } *Committee*

[*From the American Journal of Dental Science.*]

This improvement in mounting artificial teeth, is certainly the most valuable of any ever made in dental prosthesis, and will very soon be universally adopted.

[*From the New York Dental Recorder.*]

We are indebted to Dr. Allen for a double set of teeth, which he has been kind enough to manufacture for us during his stay in our city. Since the first specimens of this style of work were exhibited in this city it has been greatly improved by Dr. Allen himself, and several experienced tooth-makers to whom he had imparted his formulas and mode of operation. When well done, it now constitutes the most beautiful, and, in some respects, certainly, the most perfect kind of artificial work that has ever been made. Those dentists who have been using it in their practice, and with whom we have had an opportunity of conversing, are very sanguine that it will supersede all other kinds of work, and be very generally adopted by the profession.

[*Extract from Dr. Hall's Journal of Health*]

TEETH.—I have to record here an example of the success of genius, added to that indomitable perseverance which genius only can command, in reference to the subject which heads this article. I do it the more readily as in one of the first numbers of the Journal an intimation was given that an occasional page would be devoted to the preservation of the teeth, as an important means

not only of preserving the health, but of maintaining personal beauty. Has the reader ever seen Queen Victoria, and a — squirrel? What would she not have given to have had a set of teeth less like the front ones of the lively little animal named?

Some long years ago, I knew Dr. A—— to be laboring after the *ne plus ultra* of dentistry; but week after week, month after month, year after year, he labored on in his work-shop, where the white heat of his furnace seemed almost sufficient to burn his eyes out, or blind them with its glare: and whether in December or July, there was the same toil, the same cheerful hopefulness, if not actual confidence, of success, as his motto seemed to be that "what ought to be done, could be done," and that he was going to do it. Since I knew him to be thus engaged, he has grown bald, and age and wrinkles have come, but they have brought with them an enduring triumph. But, after all, what is it? It is simply this: A set of artificial teeth, with gum, is made, which for beauty, endurance, cleanliness, distinct articulation, comfortableness in mastication, expression, etc., has never been equaled in this or any foreign country I have ever visited. As a matter of personal convenience, agreeableness, and satisfaction to those who wear them, the discovery is literally invaluable; and if the inventor could only be induced to lay aside the diffidence which is inseparable from true talent, a career of successfulness would open before him which would satisfy his largest desire.

None of the ingredients employed admit of being tarnished or corroded in the mouth; while the fusing substance, capable of any desired tint of artificial coloring, renders the whole as firm as a solid bone: and, when necessary, can be formed so as to restore sunken cheeks to their natural rotundity, and can be worn without appreciable discomfort.

[From the New York Saturday Courier.]

DENTAL SURGERY.—The late trial at Cincinnati proves Dr. John Allen, of No. 30 Bond street, N. Y., to be the inventor of one of the greatest dental improvements of the age, and all honor should be awarded him for his ingenuity and perseverance. Nature herself has made nothing more perfect than the setting in which he

places his artificial teeth by means of the fusion of a continuous gum on the plate. All who wear teeth manufactured by this gentleman concur in pronouncing his mode of setting them, at once the most comfortable, neat, and serviceable ever employed. His long experience and thorough education in the science of dental surgery are guarantees that whatever is done by him will be well done. We may congratulate ourselves on having so successful and scientific an operator within reach.

[*Correspondence of the (M'Connellsville) Independent.*]

PERMIT me to make a few remarks on one of the most ingenious and beautiful improvements of the age, viz. : DR. ALLEN'S *improvement for restoring the contour of the face*. I send you two cuts representing the same face—one without the improvement, the other with. You perceive, at once, the great change in appearance, represented in the cuts, but which, if possible is more plainly and beautifully shown in the living subjects, daily to be seen in the city.

[*From the Toledo Blade,*]

VALUABLE IMPROVEMENT IN DENTISTRY.—Dr. Allen is well and favorably known in the West, having been for a number of years Professor in the Ohio College of Dental Surgery at Cincinnati, where he acquired an enviable reputation.

He has devoted years of arduous study and experiments in perfecting his system of continuous gum work, and has now the satisfaction of witnessing the complete triumph of his cherished plans.

The patent of Dr. Allen has been conceded to far surpass any other improvements of a similar character yet attained.

[*From the Cincinnati Chronicle.*]

THE London papers notice among American patents, the invention of Dr. JOHN ALLEN, for restoring fullness and roundness to the cheeks, by the operation of dentistry. I believe this new process of manufacturing is a good one, and likely to be popular with all persons, who wish to keep their faces in good repair.

[*From the Baltimore American.*]

SOMETHING NEW.—This may be truly called an age of improvement. The latest we have seen is one for restoring a thin, lank, and deeply furrowed face, to a smooth, plump, and beautiful form. We saw a gentleman who had availed himself of this improvement, and the change it produced for the better was truly great, making him appear, at least ten or fifteen years younger. We understand that Dr. Allen is the inventor, to whom the American Society of Dental Surgery awarded a medal, for his invention. This may be regarded as one of the most important improvements that has been made in dental surgery.

[*From the Cincinnati Gazette.*]

It has long been regarded as a matter of great importance to have the loss of the natural teeth supplied with artificial, and the perfection to which this has been carried is truly great ; but yet there was one link wanting to the long chain of improvements that have been made, which was—that of restoring the cheeks to a smooth, plump, and symmetrical form. The task for accomplishing this object seems to have been reserved for our townsman, Dr. Allen, who has discovered a principle by which this can be most successfully effected, as we have seen it practically demonstrated.

[*From the New American Cyclopædia.*]

In 1851 the process called continuous gum was invented by Dr. John Allen, late Professor in the Ohio College of Dental Surgery. In this a silicious compound similar in composition to that of which the teeth are made, but more fusible, is applied in the form of paste over the fastenings at the back of the teeth, and also in the front, so as entirely to bury the ends of the teeth, as the natural ones are buried in gums. To withstand the high degree of heat requisite for baking this upon the plate, platinum is substituted for gold. Platinum has beside, the advantage of forming at a high heat a close union with the silicious compound which is spread over the lingual side of the plate, as well as over the bases of the teeth. When thoroughly dry the work is baked at a

white heat in the muffle of an assaying furnace. Upon each are made numerous ridges and depressions with a spatula, which, when afterwards covered with the coloring enamel and fused, cause this to assume different shades of the color, and present the appearance of the veins, ruga, &c., seen upon the natural gums and roof of the mouth. The work can easily be repaired when broken, or alterations made when required by changes in the mouth, by building upon more of the paste and again baking; in this way even the length of the teeth can be increased, and new ones introduced. In the same way the artificial process called cheek restorers were applied by Dr. Allen, which are projecting portions built upon the artificial gum far back in the mouth, and serve to distend the cheeks when these are fallen. In the application of these artificial substitutes various kinds of mechanical skill are called into play, and the operator, in order to give the natural expression to the mouth, imitating the true colors and proportions of the teeth and the gums, must even possess a certain degree of that genius and taste which guide the pencil of the artist or the chisel of the sculptor. The mechanical operations connected with the work have led to increased knowledge in the use of plastic compounds, and introduced improved methods of treating the metals employed.

[From the United States Journal.]

GREAT IMPROVEMENT IN DENTISTRY.

A Synopsis of the late trial in the United States Circuit Court for the Southern District of Ohio, in the case of J. ALLEN vs. W. M. M. HUNTER.

"This important case," says the *Cincinnati Gazette*, "involving a patent for one of the most valuable improvements known in the dental art, 'a new mode of setting artificial teeth on metallic plates, secured by John Allen, of Cincinnati, in December, 1851,' which Dr. Wm. Hunter, also of our city, was alleged to have infringed, came to a conclusion on Saturday evening, after a long and able closing argument by Henry Stanbury, and charge of Judge McLean. This trial occupied eight days, during which

time fifty-seven depositions were read, and thirty-one persons examined before the jury. The testimony in this case was from men of the highest character in the dental and chemical professions, of our own city, and from various cities in the United States and from Europe. Great interest was felt in this case in both countries, as letters patent had been secured in each by the plaintiff for this improvement."

The defendant plead the general issue which involved the questions of priority, sufficiency of specifications, utility, &c. As to priority, the plaintiff showed, by numerous witnesses, that he had been prosecuting his experiments for a number of years. Dr. Geo. L. Weed testified that he lived second door to Dr. Allen, and knew that he had been experimenting for at least five years, to accomplish what he had at length attained, that he often saw him working at it very late at night, with untiring zeal to accomplish his object ; had seen specimens of work from time to time, until the date of his patent ; and that he had thoroughly tested the work, and considered it *incomparably superior* to the old method.

Dr. A. Curtis, of Cincinnati, deposed, that he had known Dr. Allen to have been working at his improvement for some ten years ; had often been in his laboratory during that time, and had frequently seen specimens of his work, and had tested it with a full set for himself, and considered it far superior to the old method. Dr. J. McCullum, of Augusta, Ky., had seen work of this kind done by Dr. Allen, in 1846.

Mrs. Colonel Bartlet, of Covington, Ky., testified, she had a full set of teeth made by Dr. Allen, with continuous gums fused upon the teeth and plate, in 1846 or 7, though not as perfect as a subsequent set made upon the same plan which were exhibited in court, and appeared as perfect as when first made ; had worn the old style, but considered the new far superior. Numerous other witnesses corroborated the foregoing testimony on those points. It was urged on the part of the defence, that substantially the same thing had been done before by Delabarre, of Paris, many years ago, and that it had been published in Fitch's Dental Surgery.

Dr. S. S. Fitch testified, that he was the author of the above named work, and that he knew Delabarre had never perfected his experiments, or brought them into practical use, that he (Fitch) had spent over one thousand dollars, and one year's time, in vain attempts to produce a practical result, but never could obtain it from Delabarre's formulas, nor did he ever know of any one who could, although he was well acquainted in Paris, had spent much time there, and knew well the French mode of practice. That he had seen Dr. Allen's continuous gum work, and considered it far in advance of anything he had ever before witnessed in the dental line.

Professor Silliman (senior), of New Haven, testified that he had never seen any work of this kind until it was introduced by Dr. Allen; that he had tested it in his family for some three years, and considered it *pre-eminently* useful.

Professor J. Lock, Chemist, of Cincinnati, deposed that he had with great care produced a chemical analysis of the ingredients named in the formulas of Delabarre, Allen, and Hunter; that Delabarre's compound required thirty-seven hundred and sixty-one degrees of heat to fuse it. This was owing to a great excess of alumina and the want of a sufficiency of fusible materials to unite the particles firmly together; consequently he found, that Delabarre's compound when fused was too fragile for practical purposes in the mouth, while Allen's fused at two thousand two hundred and four degrees of heat, possessing a much larger proportion of fusible materials, and producing good practical results, as shown by experiments conducted by himself, assisted by Dr. Kendal, at the instance of the plaintiff, in the Dental College laboratory.

The report of Dr. Lock is a very full and clear one, containing much valuable information with reference to the nature and physical results of various mineral compounds.

Dr. James Robinson, of London, author of Robinson's Work on the Teeth, testified that he had never seen any work of this kind until he saw Dr. Allen's; that he had become acquainted with it through his agent in London; that he regarded it new and useful.

Dr. J. S. Clark, of New Orleans, testified that he was acquainted with Dr. Allen's method ; had tested it some two years or more ; considered it new and useful, and would not be without it for two thousand dollars ; that he had a large and full practice, the largest in New Orleans

Dr. James Taylor, Professor in the Ohio College of Dental Surgery, stated that Delabarre's method was never perfected, or brought into practical use ; that he considered Dr. Allen's mode new and useful ; had never seen anything of the kind prior to his.

Dr. E. Baker, of New York, had been in practice for some forty years, but never saw any work of this kind prior to its introduction by Dr. Allen ; was in the way of knowing it, if anything of the sort had been previously in use.

Dr. J. Simmonds, of Providence, R. I., testified that he, in conjunction with Dr. Hawes, had constructed between four and five hundred sets upon Dr. Allen's plan, which have given general satisfaction ; that this style of work is generally preferred in that vicinity to all others ; that they formerly made block-work, but prefer the continuous gum. There were, also, many other witnesses, who testified that they considered this method new, and far superior to any other

Many testimonials might be added, but it is unnecessary, for this system speaks for itself in unmistakeable terms. It claims to have no superior in any of the essential requisites for Artificial Dentures. In point of utility it has been thoroughly tested for more than eight years, not only by the author, whose exclusive practice has been confined to this style of work, but also by many other eminent dentists in this and other cities of this country and in Europe ; and it is now conceded that when properly executed it has not been found wanting. In point of *beauty, truthful appearance, and exquisite finish* it has no equal, and in *adaptation* no superior.



