Preservation of the teeth : indispensable to comfort and appearance, health and longevity / by John Gray.

PRESERVATION

OF THE

TEETH.

PRESERVATION

OF THE

TEETH

INDISPENSABLE TO

COMFORT AND APPEARANCE,

HEALTH AND LONGEVITY:

BEING A SECOND EDITION

OF

DENTAL PRACTICE,

BY

JOHN GRAY,

DENTIST,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON,

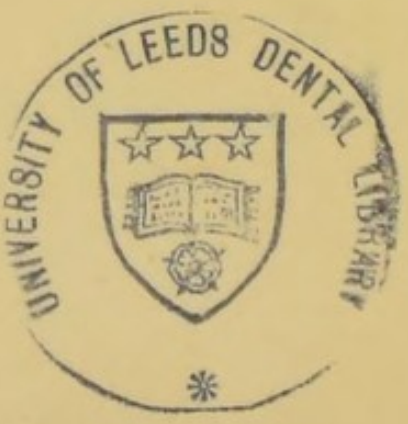
ETC.

25, OLD BURLINGTON STREET,

LONDON.

1838.

Entered at Stationers' Hall.



Printed by Richard and John E. Taylor,
Red Lion Court, Fleet Street.

CONTENTS.

Appendix.

PREFACE.

HAVING been a member of the Royal College of Surgeons in London, and in active practice as a Dentist, in my present residence, for upwards of twenty years, it has for some time been my intention to communicate the results of my experience. I propose, at present, to confine my observations to a few of the more important subjects belonging to Dental Practice. In these observations I shall notice more particularly the indispensable qualifications of the Surgical and Mechanical Dentist, and the recent unexampled increase of empiricism in the practice of the art. I shall then proceed to notice the nature and extent of the duties of the Surgeon-Dentist, in the first and second dentition, and in the regulation and management of the teeth; the present absurd and destructive practice of filing and picking holes in the teeth; the treatment of tooth-

ache; the third dentition; the importance of artificial teeth, and the philosophical principles upon which they are formed; the extraction of teeth, and the extracting instruments and lancets of my own invention.*

In this edition I have entered more fully into the qualifications of the dentist. I have endeavoured to dissuade the mechanical dentist from all attempts at quacking in the surgical department, by showing the absurdity of such conduct, and the impossibility of his doing anything but mischief to himself and patients by false pretensions in that line. I have also pointed out the impropriety of the mere surgeon-dentist endeavouring to supply artificial teeth. Nothing has degraded the profession and debased the character of individuals so much, as their obstinate perseverance in this fraudulent proceeding; and the line of rectitude once overstept, *mal-practice* prevails in all its hideousness;—filing, picking holes in the teeth, and the havock made in the mouths of children for the sake of present and prospect of future fees, have been the consequences. The barrier of respectability having been thus

* These instruments have been honoured by the approbation of the Medical Society of London, and the Medal of the Society of Arts.

destroyed by those whose duty it was to uphold it, the profession has been overwhelmed with quacks. The wretched mechanical quackery of surgeon-dentists was seen through and imitated by needy adventurers, and the nucleus thus formed, has increased in magnitude and deformity.

I have called the attention of ingenious mechanics to the subject, and sketched out such an education as my experience suggests to be best calculated to form a proper mechanical dentist. The abilities of such dental artists would soon render them respected, at least by their patients; and, if real merit should ever become fashionable, quackery would cease.

I know it is expected that I should make some observations on the charges of dentists. There are real and adventitious circumstances that affect these charges. The works of art are of slow production, because, emanating principally from the head, they require much time and study; and if real artists are not liberally remunerated for their labours they perish. Artists and works of art cannot be estimated by mercantile rules; they can only be appreciated and understood by enlightened minds.

The intrinsic worth of their productions is what really ought to regulate the charges of artists in general.

The artificial state of society and the follies of fashion, that create and foster empiricism, and despise all talent unaccompanied by the quackery of ostentation, unavoidably affect the charges of artists. Hence, men of real abilities are either condemned to obscurity, or compelled to imitate the show and pomp of the quack, which, without benefiting the artist, or improving his works, greatly enhances their price; and, from this cause, artists of the greatest merit are often the least known. An impudent *ignoramus* will often contrive to force himself into more notoriety in a few months, than "modest merit" can attain in a lifetime.

With regard to the cheap artificial teeth offered to the public by sham artists, such productions may be classed with razors at eighteen-pence per dozen, vended by persons of the same *caste*. Cast-iron razors, and artificial teeth on metal plates, which are not only useless but injurious, are dear at any price. But, unfortunately, in looking at the other extreme, we too often see work of the worst description, for which the highest price has been

charged, by sham artists of another class, who ought as *honest men* to confine their practice entirely to surgery.

Nothing but a wholesome influx of clever dental artists, prepared in a rational manner for the exercise of the profession, can correct these abuses; and when that takes place, and not till then, will the public be well and cheaply served.

Old Burlington Street,
London, 1838.

DENTAL PRACTICE.

Qualifications of the Dentist.

The practice of this profession is naturally divided into two branches, the surgical and the mechanical, which are as distinct from each other as the practice of a surgeon is from that of a watchmaker.

The surgical part may be tolerably well performed by any surgeon, and many active practitioners, in country places, become expert surgeon-dentists. It would be well for their patients were they content with such services; instead of getting their teeth destroyed by quack dentists, who cover their ignorance and presumption with the cloak of mystery.

The Mechanical department is not so easily filled up. Owing to the false system that has hitherto prevailed, proper mechanics have not been brought into the profession. The quackish use that has been made of gold and silver plates, in the construction of artificial teeth, has naturally led to the employment of a class of mechanics, who generally speaking, are inferior workmen. In point of accuracy of construction, and delicacy of execution, the really clever clock and watchmaker, he whose art has been carried so far as to place a watch in a ring, and music in a seal, must far surpass other mechanics. Such artists as these

"called in to play their part, would shew the glory of the art."

If really talented mechanics would direct their abilities to the making of artificial teeth, on their *own account,* unhampered and unannoyed by the false models and mystifications of ignorant pretenders, they would not only confer a great benefit on the public, but raise themselves from the depressed state to which they have been reduced by mere shopkeepers; and would, moreover, materially assist in dispersing the swarm of ignorant and rapacious swindlers, that at present incumber the dental profession.

Unfortunately dental practitioners seem to think it absolutely necessary that they should assume both the surgical and mechanical departments, whether *qualified or not,* and to this absurd proceeding there is scarcely an exception. Hence the surgical portion of the profession, instead of sustaining their dignity, have been the first to quack and botch in the mechanical department, rendering it not only contemptible but injurious; while the mechanical portion retort by styling themselves "surgeon-dentists." This is a condition of things much to be lamented, and is the cause of the confusion that now reigns in the profession; it is this cause that deprives the qualified surgical and mechanical portions of the profession, of that unity of mind necessary for forming themselves into associations for their own and the public protection, against the overwhelming dental quackery of the present day. Such is this confusion that we may see a regularly educated surgeon wasting his time and injuring his fame in pitifully fastening a gold plate, as artificial teeth, in the mouth of his miserable patient, when he knows, or ought to know, that the metal will keep up a continual galvanic action in the mouth and throat; and ultimately destroy every tooth with which it comes in contact. On the other hand there are practitioners, with no other qualification

than their own presumption, (as the College List will show,) in full practice as surgical dentists, reaping that field which legitimately belongs to the surgeon, who, in his folly, abandons it a prey to quacks.

The question is often mooted, what can induce a mere surgeon-dentist to quack in the mechanical department? Is it cupidity, or vanity?—It is certainly dishonesty and folly; as much so as it would be in a watchmaker to assume the profession of a surgeon. It can scarcely be supposed that want of business in his own line compels the surgeon-dentist to intrude upon the mechanic, for the public requires, or seems to think it requires, a very frequent attendance on the dentist, how else could so many quacks exist who appear to be doing great business as surgeon-dentists. In fact the quacks are far more successful in their inroads upon the surgical department than the surgeons are in their invasions on the mechanic.

We have physicians, surgeons and apothecaries, and the public derives great advantage from this division of the medical profession:—why not surgical and mechanical dentists? In fact, it is neither necessary nor desirable in great cities, that the same person should practice in both branches, any more than in the other departments of the healing art. The line of distinction is as obvious as it is seriously important; the surgeon is called upon to operate on parts endowed with the living principle, and to this the mere surgeon-dentist should strictly limit his practice; whereas the operations of the mechanical-dentist should be strictly confined to inanimate matter, for the moment he goes beyond this he wanders out of his depth. It is impossible that an empiric can ever have a proper conception of what is termed the living principle! which is the study of the whole life of a medical man, whose mind is

continually liable to be burdened not only with the *fate* of his patient, but with that of the patient's family; and this sufficiently accounts for the serious and thoughtful aspect of medical men in general.

The Dental art, as a distinct profession, is only about forty years old; and, although incongruities and abuses are apt to attend the infancy of all undertakings, yet the public of the present day has a right to expect the advantages of maturity in this art, from the strong claims its patrons have on the gratitude and fair-dealing of its professors, to whom it has been excessively liberal. From mere quacks, who are neither surgeons nor mechanics, of course no reform can be expected, any more than from swindlers in general; *they* will continue to work their mischief until the liberality of the public is guided by discrimination. As all successful reforms must be begun at home, let the respectable portions of the profession, surgical and mechanical, do their duty honestly, and trust to the growing discernment of the public for the result. Let those who are surgeon-dentists regulate their practice accordingly, those who are mechanical-dentists do the same, and such as are *bona fide* mechanics as well as surgeons, practise as general dentists, or as their inclination may prompt,—and thus quackery will not only be put out of countenance but circumscribed in its sphere of action.

As it is evident that only a duly qualified surgeon is competent to act as a surgeon-dentist, and that an experienced practical mechanic, only, can succeed as a mechanical dentist, so it is equally dishonest for the mere surgeon to assume the mechanical department, as for the mechanic to play the quack in the surgical department; indeed there is a much greater distinction between them than is commonly supposed.

The mechanical must always precede the surgical education; for, it has been observed, that he who is not an expert mechanic at the age of twenty, will never afterwards be able to acquire the mechanical dexterity that is necessary for the fabrication of artificial teeth; whereas, in the acquirement of surgical knowledge, so much more serious thought and riper judgment are requisite, that the student reaps comparatively but little benefit from his studies before that age. Hence a mechanic may become a surgeon, but he who is first a surgeon can never afterwards become a mechanic.

It would appear, however, that if a surgical education be not acquired in early life it cannot be afterwards, else many quacks, whose impositions have proved successful in a pecuniary point of view, would gladly obtain the respectable designation of surgeon. This is further corroborated by the anxiety which they often evince to give their sons a regular surgical or medical education; thus showing how keenly, though secretly, they feel their own degradation, even in the midst of successful imposture.

It is only when the accomplished mechanic has superadded the qualification of surgeon, that he may legitimately assume the whole range of the profession of a dentist with credit to himself and advantage to his patients.

Although a mechanical dentist ought to be a first rate workman, yet there is not that in the work itself which would ever produce a workman.

As a physician must acquire a thorough knowledge of anatomy before he can practice medicine, so must a mechanical dentist acquire his mechanical abilities before he turns dentist, or he will ever remain a "botch." One reason of this is, that the workers in comparatively soft materials do not make their own tools, the fabrication of

which is the most essential part of the education of a mechanic. The workers in steel and other hard metals make the greater part of the tools they use, by which means they become critically acquainted with the temper and other properties of those that best suit their peculiar mode of working; and the shades of difference in this respect are so nice, that few workmen can use the tools of others without injuring them—for instance, no mechanic can properly use a *fine* drill that he has not made for himself.

An employment like clockmaking practically exercises all the laws and principles of mechanics, and thus clockmaking is to the watchmaker and mechanical dentist what anatomy is to the surgeon. Without it the watchmaker can never rightly understand his business, and consequently can never become a sound workman. Watchmaking, which is clockmaking in miniature, requires such anxious care and exquisite execution of minute parts, that the making of artificial teeth would appear comparatively coarse work to a talented clock and watchmaker; all the practical knowledge and mechanical dexterity of a clever general workman as a clock and watchmaker is requisite for, and can be applied to, the making of artificial teeth; and thus a watchmaker may be a dentist, though a dentist cannot be a watchmaker. It must not be understood, however, that every watchmaker is an Earnshaw, or fit to become a dentist. None but a genius and an enthusiast will ever shine in either character.

As health or indisposition, comfort or pain, may be the result of their performances, it is evident that dental artists should be the first mechanics in the kingdom. The importance of their labours demands this, and the liberal price paid for their services should command it. To the ingenious the work will be delightful from its constant

variety, which calls into action all the inventive and mechanical faculties, and affords them scope. And although the making of artificial teeth has been hitherto (with very few exceptions) carried on as a trade by rapacious pretenders, yet it is not a *trade*, but an *art* of a high order, and as such it cannot be performed by proxy. Artificial teeth cannot be "got up" even by clever artists without seeing the person to whose mouth the work is designed to conform, and the functions of which it is intended to assist; as well might an artist be set to paint a portrait without being permitted to see the original. Like other artists the mechanical dentist must execute all, or very nearly all, the work with his own hands, or he never can succeed as a dentist, nor ought so to do.

The increasing demand for artificial teeth opens a rich field for the enterprise and encouragement of ingenious mechanics, particularly clock and watchmakers; and young men brought up in the country as general workmen, will always possess a decided advantage over those bred in large towns, where they generally learn but one branch of watch work, which is very seldom preceded by clock-making, and consequently they are very little better than *automata*; parents and young men themselves should endeavour to remedy this fundamental defect in the "division-of-labour education," which renders them liable to be thrown out of employment by every alteration in their business, and unable to turn their hands to anything else.

I shall conclude this subject with a sketch of what I should consider to be a proper education for a mechanical dentist.

A boy at the age of twelve years with such a development of faculties as clearly indicates a "mechanical genius," should be placed in a clockmaker's shop till the

age of seventeen; if the work carried on in the shop be of a general or mixed nature, which is commonly the case, and if many men be employed, so much the better, provided the principal part of the work done be clockmaking. From the age of seventeen to nineteen or twenty he should be employed at watch work, either repairing or finishing, in order to "fine down his hand," so that he may never afterwards experience any difficulty with work on account of its minuteness.

Having now, it is presumed, acquired mechanical knowledge and manual dexterity, he may commence the making of artificial teeth under the best instructor he can procure; and if the education of the dental preceptor has not been equal to that of the pupil, the latter will soon surpass his master.

If the surgical is intended to be added to the mechanical education, his anatomical and other surgical studies may be commenced simultaneously with those of the dentist, without prejudice to either, for they will assist rather than retard each other. At this period the beauties of the interesting field that opens upon the ardent mind of youth may be experienced but cannot be described. At the age of twenty-five his surgical knowledge may be so complete as to procure his admission as a member of the College; and, when a few years of experience in the actual practice of his profession have given him the ease and confidence attendant on ability, he will be able to look back with satisfaction on the progressive steps by which he gained his knowledge and present eminence.

A young man of genius and sufficient enthusiasm for the task, may, by his own exertions, acquire the above education, including the surgical part, without any assistance from parents or friends. I mention this for the en-

couragement of merit, knowing it to have been achieved with comparative ease. Similar spirits may aspire to the same honour. Self-acquired advantages are at once the most honourable and valuable to the possessor.

Dental Quackery.

The great number of Adventurers who have lately assumed the character of dentists, without being either surgeons or mechanics, induces me to make some observations on the increase of empiricism in this profession*.

The greatest mischiefs inflicted by quacks is the odium and distrust their mal-practices bring upon the profession they invade. Scarcely a week passes in which I am not consulted by some person who has been entrapped, by the specious appearance of a book, or some such artifice, into the hands of an empiric, and made to pay for receiving an injury: and as the fear of exposure on the part of the sufferer precludes all application for redress, the impostor continues his career in security.

Empiricism seems to be the same in all ages, for, like their prototypes, modern quacks affect great style and pomposity, publish books, &c. (embellished with their own advertisements as critical notices,) in which they are liberal in conferring *degrees* on themselves, but either omit the name of their college, or place it in a foreign country. They also circulate prospectuses of real or imaginary books, sometimes purporting to be written by other per-

* The London Directory contains the names of upwards of one hundred and twenty individuals calling themselves Surgeon-Dentists, a large majority of whom are said to be Jews, while the List of the Members of the Royal College of Surgeons, published in August, 1836, reduces the number to seven. This List, which is generally in the hands of every surgeon, may be consulted for the purpose of ascertaining what Dentists are really Surgeons.

sons; and in these publications the impostors snugly praise themselves.

A BOOK is got up in the name of quack A, in which the writings of John Hunter and other eminent physiologists are freely and largely borrowed by way of ground-work, and the rest of the book filled up with such quackery as is supposed best adapted to gull that *class* of the public selected for prey. Another book is got up in the name of quack B, an accomplice, containing liberal quotations from book A, in which the writings of Hunter and others are made to appear as those of quack A, whose peculiar putty for stopping hollow teeth, &c., is duly and largely praised; great care being also taken to style quack A, a *gentleman*.

These puffs, (containing the usual quantum of fictitious cases,) although things of rote, abundantly vague, and occasionally absurd, are nevertheless very mischievous, in misleading the portion of the public unable to discriminate on such subjects without the help of medical advisers.

That certain persons are born with particular propensities is forcibly illustrated in the manifestations of uncontroled presumption displayed by some individuals, even in the lowest grades of society, who are destitute of all claim to superiority over their fellows; but who, having accomplished the easy task of deceiving themselves, pass the rest of their lives in conflicting efforts to enforce on others this belief and acknowledgment of their self-importance. This is the state of mind, of all others, in which empiricism takes deep and permanent root. It is the temperament that produces the peculiar and obtrusive enthusiasm which distinguishes the genuine empiric, and is the cause of his morbid activity of mind and body; for a quack has to sustain far more mental exertion than a legitimate practitioner; and, although cunning and cupidity are always

component parts of his constitution, still it is the irritable enthusiasm that forms the chief feature by which he is characterised.

To such persons the task of *creating themselves* surgeon-dentists, with the inspired power of writing on the subject, is very easy; for their contempt of the public understanding and their usurpation of the profession, being grounded on the ignorant conceit of self-sufficiency, the inaptness of their previous habits and occupations for such a line of practice never disturbs their thoughts.

It has been often observed, that the lovers of the marvellous will always patronise quackery, and many say, "if people will be deceived, let them be deceived." The same may be said of *fortune-telling*, the most palpable of all self-delusions, yet experience has shown the propriety of protecting the weak and the credulous against the snares of the cruel impostor, and of making him amenable to the laws, and punishing him as a criminal.

To the medical profession collectively is entrusted the care of the general health, which must include the detection and exposure of empiricism, for the purpose of removing its baneful influence on the public, whose only sure guide is the direction of medical advisers, both with regard to what ought to be done, and who should do it; and it cannot be a matter of indifference to a truly learned and scientific body, to see even the most remote ramifications of the profession usurped and degraded.

In the last century, when a person lost a tooth, even in the front of the mouth, the art of repairing such a deficiency being then scarcely known, or even thought of, the space remained vacant; and although the adjoining teeth were weakened by the want of lateral support, yet most persons retained through life a good and useful portion of

them. When such an accident now occurs, and the person seeking a remedy for his deficiency has the misfortune to fall into the hands of one of the unprincipled quacks with which the metropolis abounds, he is supplied with a tooth (most likely of miraculous composition) which the empiric fastens to the adjoining teeth, perfectly aware that such fastening will destroy them. When this is accomplished, the patient is next supplied with a piece of three teeth, which is soon followed by the like result; and, if the sufferer has patience to go on, he is supplied with pieces more extensive in proportion to the havoc made in his teeth by the fastenings of those which are artificial.

As there unfortunately exists so strong a repugnance in most persons either to ask or to give advice on the supposed delicate subject of artificial teeth, it becomes the imperative duty of the regular medical practitioner to interpose with his advice and counsel, to save his patient from falling into the destructive hands of quacks.

It is an unfortunate circumstance for the public, that the use of artificial teeth is considered by most persons of so delicate a nature, as to require concealment. When a person finds it requisite to have his loss of teeth supplied, it is then that he feels the difficulty of selecting an artist capable of accomplishing his wishes, yet the fear of exposing his loss prevents him from asking (what perhaps the *self-same fear* prevents his friend from giving) the important information; and so, unadvised, and with the chances so much against him, it is no wonder if he ultimately become a prey to the pretenders who (calling themselves dentists) have lately usurped the profession, for the practice of which their previous habits and occupations had not in the least qualified them.

When a person has suffered imposition and disappoint-

ment, he is apt to conclude that there is nothing better to be obtained, and is deprived of the very comfort which perhaps his intimate friend enjoys in secret. This serious grievance can only be remedied by those who have had their losses supplied to their satisfaction. Could *they* prevail upon themselves, in justice and humanity to their suffering friends, to make known the source from which they derived *their* comfort, ignorant and pompous quacks would soon cease to exist. There are, happily, a few generous exceptions to this restraint of secrecy in persons, who, setting selfishness aside, consider it a duty which they owe to their friends, and the artist who has laboured successfully for them, to lose no opportunity of making known the practitioner from whom they have derived the benefit.

The inspection of the College List is all that is necessary to find a surgeon-dentist. In selecting a mechanical dentist, the absence of the name from the same List will supply a negative rule on which the public may safely rely; for such persons as profess to be *surgeon*-dentists, and yet are not surgeons at all, and thus place *themselves* in the position of swindlers with regard to the surgical department, can be viewed in no better light in their mechanical capacities*.

* The most noisy of the dental quacks seem of late to have grown desperate; and, by publishing their *charges*, have unwittingly let the public into the secret of the true value of their services.

The main efforts of the quacks are now directed to the procuring of pupils and partners, or rather premiums, for which they undertake to instruct their dupes in a profession of which they are themselves ignorant. The number of bungling quacks will increase or diminish in proportion to the success of this fraud on "Parents and Guardians."

The Defective State of the Teeth *of the present Day, compared with that of the last Century.*

In the higher ranks of society, it is scarcely possible to find a person of the age of twenty-four, who has not lost some teeth, and so many of the remainder are stopped with gold, that their mouths have some resemblance to the window of a jeweller's shop. I am often waited on by elderly ladies with their daughters; the mother has often excellent teeth, but the daughter is as often half toothless. The mother eagerly inquires the cause of the teeth being so generally defective now-a-days, compared with what they were forty or fifty years ago, when the care of them was little thought of, and dentists scarcely known, except a few tooth-extracting barbers, and observes, that it seems a hard case that teeth should suffer in proportion to the care bestowed on them.

I can only answer to this, that, within the same period, the improvements in medical and surgical science have been so great, that many diseases, always dangerous and often fatal, are now regarded with comparative indifference. But, in these cases, the enlightened portion of the public has appreciated the labours of its benefactors, cheered them onwards with its countenance and support, and wealth and honours, have in many instances been the justly merited rewards of their philanthropic toils.

But while the upper ranks have taken a lively interest in the discoveries and improvements in medical and surgical science, they seem to have altogether overlooked the dental department, or treated it as a profession too trifling to require serious consideration, and consequently have got into the habit of submitting their teeth to the opera-

tions of persons whose ignorance and incapacity to perform what they undertake must be apparent on the slightest attention. So far from comprehending what ought to be the qualifications of a dentist, the public seems never to have given the matter a serious thought, as if it were a profession which any person might assume at pleasure, which indeed has been very customary of late; and, provided that he be a person who is supposed to be *fashionable*, his fitness for his profession is never questioned.

So long, therefore, as people will place themselves in the hands of empirical dentists, it must be expected that the teeth will prove much more defective than they were before this custom prevailed.

Many young persons are in the habit of attending the dentist from a mere feeling of vanity, when no real necessity exists for his services, and the melancholy fact is but too evident, that the teeth of persons in genteel society in the present day, suffer more from "over doing" than they would from total neglect. This is mainly, if not entirely, to be attributed to the mal-practices of dentists, particularly to the iniquitous system of filing and picking holes in the sound teeth, or the comparatively sound teeth, of young persons, for no other apparent purpose than that of affording themselves the opportunity of plugging up these holes of their own making. In the hollows of the grinding surfaces of the side or molar teeth, some dark specks are seen, or supposed to be seen; the patient is gravely told that these specks will degenerate into holes, to prevent which they must be dug out, by way of eradicating the disease, and the cavities thus formed stopped with gold. So a hole is to be made in the tooth to prevent the tooth from making a hole in itself: poor comfort this for the sufferer! In either case, the tooth is doomed, and the mouth rendered

galvanic by the presence of the metal, as in the case of artificial teeth on metal plates. A slight disorganization of the enamel frequently takes place without occasioning any cavity or loss of substance; in this state it imbibes colouring matter, and presents a brown or dark spot, which, if not excited and aggravated by the employment of the file and other instruments of destruction, may remain stationary for life, and the tooth perform its functions without pain or inconvenience; but, unfortunately for the confiding patient, certain dentists perceive in these specks *fees for stopping;* and if the victim be young (which is generally the case), ask him, at the age of forty, what became of such teeth, and what he endured while he struggled to retain them? My limits do not admit of enlarging on this head at present further than to observe, that, preposterous as the practice may appear to simple minds, it is almost universal with dentists of every grade.

If people of fashion would examine their teeth, and those of their children, and compare them with those of their ancestors, they would readily perceive the destructiveness of the present system. But it appears that they must suffer still more before they can be cured of their *goût* for fashionable quacks.

Although I fully appreciate the *real* improvements of the present day; yet I am constrained to admit that the teeth were far better in the last century, when the attentions of the "family doctor," were justly considered all sufficient for the care of the children's teeth. It is in the mouths of children that irretrievable havoc is made, and deformities are produced; it is there that mal-practice sows the baneful seeds of the "food it feeds upon."

Filing the Teeth.

An ignorant and barbarous practice has for some time prevailed of working a file up between the teeth of young persons, under the senseless pretence of freeing them from lateral pressure; but as it is to this pressure that the teeth owe their mutual support, so their strength and durability depend upon it. A large proportion of those to whom I have supplied artificial teeth attribute the decay and loss of their own teeth to this injurious practice. The main point in such cases seems to have been entirely lost sight of, namely, the age of the patient. The teeth of old people are often in a state of insensibility, but the case is very different with those of young persons; if the enamel of *their* teeth be once broken by the file or by accident, pain, caries, and the loss of such teeth often follow in rapid succession.

When the teeth are separated, their interstices become clogged up every time the owner eats, and cannot be cleaned by the tongue as when the teeth remain in contact: and when the separation is produced by filing, their morbid sensibility allows no rest till the person thus mutilated has had recourse to the tooth-pick after every meal. No person who uses the tooth-pick will retain his teeth to old age. Those whose teeth are close together, as nature generally places them, seldom have occasion for this instrument; and the humane Dr. Buchan always recommended the substitution of the tooth-brush for the tooth-pick,—a benevolent and judicious admonition.

When the teeth of young persons are thus rendered painfully sensitive, they may almost be said to have lost the use of them, and they generally prefer swallowing

their food without mastication, to avoid the uneasiness produced by the process. When reduced to this miserable condition, they must expect to be in the hands of the dentist the remainder of their lives.

The absurd and mischievous theory that teeth may be filed and cut away with impunity, if the central cavity be not penetrated, must have been invented to reconcile persons to the double action of galvanism and fricton, caused by the employment of metallic plates in the cheap and worst construction of artificial teeth. Persons advanced in life complain of the pain and loss of teeth they suffered by the gold plates wearing away the substance, and ultimately drawing out the teeth to which they were attached.

The only case that justifies the employment of the file is where *caries* has commenced on the side of a tooth next to a sound one. The carious portion may be filed away to prevent the lodgment of extraneous substances in the decayed part, and to remove the contact of the adjoining tooth; or where two adjoining teeth are carious, the same practice may be pursued. The wanton barbarity of filing between the sound teeth of young persons on the absurd pretence of freeing them from lateral pressure, and making room for the tooth-pick, is so monstrous, that nothing but the knowledge of the fact that it is of daily occurrence could render it credible.

Caries never takes place on the cutting edges of the front teeth, nor do I think that it ever begins on the points in lateral contact; for it is but a very small portion of the front teeth, near their cutting edges, that are in actual lateral contact with each other. The caries uniformly commences about the middle, and more frequently nearer the necks than the points of these teeth; and although the disease may *extend* to the points in late-

ral contact, yet unless we can trace the original seat of the malady to these minute points, we must look for some other cause than the empirical suggestion of *lateral pressure*.

Any person may convince himself of the absurdity of lateral pressure being prejudicial to the teeth, by examining the mouth of an aged person, whose remaining teeth will be found to be the front teeth of the lower jaw. If only one tooth remain, it is almost certain to be one of these, and most likely a canine tooth. Now the front teeth of the lower jaw (the smallest and weakest in the mouth) are the only teeth subject to lateral pressure, particularly when the loss of the side teeth allows the upper front ones to close with all the force of the jaw on the outside of the circle formed by the lower front teeth, by which they are pressed compactly together, and form a union of strengh, like the members of any other arch, by lateral pressure, or lateral support, (for the terms in this instance are synonymous,) sufficient to enable them to dig into the substance of the upper teeth, to push them forwards, and ultimately to expel them from their sockets, and remain the last teeth in the mouth ; and all this they are enabled to accomplish by the benefit of lateral pressure.

When the teeth have not been subject to external violence, or the baneful effects of certain medicines, the empirical attempts to restore their loss by means of metallic plates, and such methods as require support from the natural teeth, (which always augment the original deficiencies,) the progress of their decay and loss generally commences with the grinders ; and when so many of these are lost as to allow the *front teeth* to meet in mastication, the upper ones are soon destroyed by their opponents in the lower jaw as before described. Nineteen persons out of every twenty who have lost most of their teeth by what is called

the decay of nature will confirm this account of the manner in which they lost them.

First Dentition.

The treatment of children during the process of teething belongs exclusively to the medical practitioner. It requires long experience and consummate skill to employ those prompt, yet cautious measures, which are called for by the alarming symptoms occasionally arising in children of irritable habits, and susceptible of inflammation. These measures, being quite out of the sphere of a dentist's practice, I shall omit, and leave their consideration in the hands of those to whom the treatment of infantile diseases legitimately belongs, merely observing, that the neglect of appropriate and efficacious remedies, local and general, is often followed by fatal consequences.

Second Dentition.

The first, or milk-teeth, should never be extracted, unless an absolute and evident necessity exists for making room for the coming teeth. Nature's intention seems to be that the second teeth should not appear until they are sufficiently formed and hardened in the jaws, so that when they come through the gum, about the eighth year, they may have acquired that durable solidity intended to last for life.

When the first teeth are removed, either by accident or design, their successors soon protrude, after this loss of the natural barrier to their premature appearance; for we may sometimes observe children of the age of six years, with their second front teeth through the gum, (those of

the lower jaw particularly,) in consequence of having prematurely lost their predecessors. These teeth, sent forth before their time, I have generally remarked to be of delicate, and often defective texture ; and from the shortness of their fangs, extremely liable to be lost by the slightest accident.

Some children do not begin to change their teeth until a comparatively late period. I have seen cases of this kind where the child had been without front teeth for years, some having been lost by accident, but most of them by injudicious extraction. In these cases the jaw was much contracted in its dimensions, from being so long without teeth, which are the agents employed by nature to keep the jaws extended until their formation is completed. The premature removal of children's teeth prevents the proper development of the growing jaw, and occasions deformity of the worst description; the teeth of the two jaws cannot meet properly in mastication, and, consequently, soon destroy each other ; "the expressive mouth" is disfigured by the front teeth being either deficient in number, or crowded and misplaced : and thus the countenance is greatly altered from the family character.

When we are content to follow the indications of nature, and assist her operations, we are generally successful ; but when we would be wiser, by anticipating or thwarting her designs, the result is always calamitous. It has been the fashion to take children to persons who have assumed, at their own will, the character of surgeon-dentists, and who, through ignorance, or something worse, extract the milk-teeth by wholesale, and thus the permanent teeth are let through the gum before nature has been able to complete her work. May not this be one of the long sought for

causes of caries of the teeth? And does it not show how circumspect parents ought to be? Why should they submit their children, in cases purely surgical, to persons who are not surgeons? Surely, in such cases, the practitioner requires a more substantial recommendation than that of being a fashionable dentist. Many of the keepers of boarding-schools contract as regularly for the services of what they call a surgeon-dentist as for those of the dancing and music-master; and thus children often have their teeth ruined before parents have any knowledge of the circumstance, their first information on the subject being derived from the item in the bill of school-charges.

No legitimate practitioner would condescend to assist in such interested views. Children ought never to be interfered with, in cases not immediately urgent, without the express authority and direction of their parents. In the course of my experience, I have had too much occasion to remark the bad effects of ignorant and interested persons being thus let loose upon children.

The children of poor people generally extract their milk-teeth themselves, as nature intended; for when she works kindly, and it is but seldom she does otherwise, when not disturbed by an injudicious interference with her operations, the fang of the old tooth is so completely absorbed, that the child picks it off from the top of the new one, frequently reduced to a mere shell. However, when nature seems to flag or deviate from her usual regularity, much may be done by the skilful surgeon in assisting her efforts and promoting her intentions. The best proof of this is seen in the comparatively sound state of the teeth in humble society, which are happily exempt from the care of fashionable dentists.

Regulation of the Teeth.

A most reprehensible custom has prevailed of extracting the first or second grinders of young people, on the empirical pretence of making room for the other teeth, and preventing lateral pressure; and as people of rank are very properly solicitous about their children's teeth, so they have been the greater sufferers from this pernicious practice, as may be seen by the teeth of their offspring being mostly separated and apart, as if too small for the jaw, and consequently deprived of that mutual lateral support of each other so essential to their beauty, strength, and durability, Now a little reflection would show the absurdity of this barbarous practice.

Between the seventh and fourteenth years, the second, or permanent, teeth present themselves, and their disproportionate magnitude to the young face and jaws is then remarkable, for *they come through the gum at their full size,* and never afterwards increase; but it is otherwise with the jaws, which continually increase in size until the age of twenty-one to twenty-five, when the dimensions are so enlarged, that room is then made for the wisdom-teeth. The others are by this time generally accommodated and arranged as nature designed.

When an instance *does* occur of nature producing teeth actually too large for the jaw, when fully developed, recourse may then be had to extraction, with the same success as at an earlier period, for we may remark, that when a person loses a tooth at any age, the others always incline towards the opening thus made.

There is one circumstance of the utmost importance, to which parents should attend when the second teeth appear, namely, to be certain that the six *upper* front teeth shut

outside of the corresponding lower ones, and nature will generally do all the rest. But if the front teeth do not all close properly, no time should be lost in procuring professional aid, or the upper and lower front teeth will soon destroy each other.

Persons requiring the assistance which science alone can render would do well, as I have already observed, to consult not the Court Guide, but the *College List of Surgeons*.

Third Dentition.

The dentes sapientiæ, or wisdom-teeth, are said to be "the last to come and the first to go," and there is unfortunately too much truth in the adage. I think the chief cause of this is the slow manner in which these teeth come through the gum, which not being absorbed by the pressure of the teeth, a small aperture only is made in it, which may continue without much enlargement for months, and even in some cases for years; and thus a sac is formed over the head of the tooth, receiving particles of food, &c., through the small opening, and these contents of the sac undergoing chemical decomposition, the tooth is in consequence frequently coroded and destroyed before it can emancipate itself. Between the ages of twenty and twenty-four, I suffered in my own person much pain and inflammation from these teeth on the right side, which recurred at intervals for about fifteen years, (the period of their slow growth,) and perceiving that the lower tooth rose so slowly, and that the natural opening in the gum was small, I was in the habit of getting a friend to cut away as much as possible of the gum (which was thick and hard) over the top of the tooth; yet notwithstanding all my care and attention, I found that when the tooth grew

up it was dark and discoloured. The discolouration, however, soon disappeared, and this tooth, with its opponent in the upper jaw is now perfectly sound and white. The gum over the tooth of the upper jaw required no attention, as the natural opening was soon as large as the top of the tooth. My wisdom-tooth of the lower jaw on the left side is now coming up, and although scarcely as high as the gum, which seems thick and hard as in the former instance, yet, as the natural opening seems large enough, I have not had occasion to use the lancet. With regard to my fourth wisdom-tooth, the space for which is still vacant on the left side of the upper jaw, there is yet, at the age of forty-five years, no appearance of it. My teeth have always been perfectly sound. As this case elucidates several peculiarities of the third dentition, it will be seen that the attention of the surgeon should be directed principally to prevent the formation of a sac with an opening on the surface of the tooth, and it shows the great irregularity of the periods at which the dentes sapientiæ appear, even in the same individual.

A singular circumstance connected with this subject is the formation of teeth at advanced periods of life, as if nature were even then endeavouring to renew the body. This is very rare, and in the course of a long and extensive experience, I have only met with four cases. One was that of a gentleman aged nearly seventy, who had lost all his upper teeth except one molar. Some years after I had supplied him with a piece of artificial teeth, two, resembling canine teeth, protruded through the gum, near the situation previously occupied by such teeth; and, notwithstanding the resistance of the artificial piece to their progress, they grew with such force, as to imbed themselves in the artificial gum, so as to disturb the adhesion of the

piece to the natural gum. The gentleman was therefore obliged to come frequently to me, in order to have the cavities of the artificial piece made deeper to admit the points of the new teeth, and thus prevent their pushing the artificial piece from its place; and one of them grew so fast that I was obliged to perforate the piece to let it come quite through. The patient considering these teeth rather as an inconvenience, by their displacing his artificial teeth, solicited me to extract them, a measure to which I would never consent, as it would have been a most ungrateful return for an unusual exertion of nature's restoring powers in his behalf. The two teeth came through the gum sideways, with their inner surfaces facing each other. The other case was nearly similar, except that this gentleman had only one canine tooth when I saw him. Both gentlemen were quite certain of having had their second canine teeth, and of having lost them. I have lately seen two robust old ladies, with cases nearly similar to that of the last gentleman.

Management of the Teeth.

Use a soft brush, and when necessary, thin the middle of it with scissors. Brush the teeth gently, first over their grinding surface, then across, and lastly from the gums towards the points, particularly the inside of the lower front teeth, to clear the interstices. Should the gums bleed by moderate brushing, the operation is salutary; and in most cases where they have receded, it will cause them to grow up again and adhere to the teeth, if they are free from tartar. The judicious use of the brush is the best means of preserving the teeth and gums in a healthy and

firm state. They should never be rubbed with a cloth or the finger in preference to the brush.

They who possess good teeth should be careful to preserve them. When they are in good order, and free from tartar, the use of a soft brush with a little simple dentifrice* occasionally, will be quite sufficient to keep them so, and with this the owner should rest satisfied. Many individuals, with fine teeth, destitute of the sense to let well alone, are so often in the hands of the dentist, that the very means by which they seek to gratify their vanity become the sources of its mortification.

All acids and high-seasoned foods should be avoided, both being equally detrimental to the stomach and injurious to the teeth.

They who value their teeth should avoid quacking themselves with mercurial preparations, which have been, and are still too much in use, under the sanction of the late Mr. Abernethy's "Book". On his authority, many persons are accustomed to administer blue pill and rhubarb to themselves and their families as familiarly as they would bread and cheese. The rhubarb alone should satisfy them, except when prescribed by a medical practitioner, and they would thus escape the absorption of the alveolar processes, and consequent loosening of the teeth, always attendant on reiterated doses of blue pill. As mercury, in every form, produces invariably these disastrous and permanent effects on the vessels and sockets of the teeth, it should never be used, except under the direct prescription and superintendence of a regular medical practitioner.

* As many persons have an aversion to the use of dentifrice, particularly where the gums are soft and unhealthy, by the advice, and with the assistance of some eminent medical friends, I have prepared a compound tincture of myrrh, to answer either as a substitute for, or auxiliary to the dentifrice.

While on this subject I would most earnestly exhort all industrious ladies, when at their needle-work, to discontinue the destructive practice of pointing and breaking off threads with their teeth, the bad effects of which would almost lead to the supposition that the teeth had been employed on the needle as well as on the thread. Nothing can be more distressing than to witness the effects produced by this pernicious practice on the teeth of young persons, who are unconscious of the consequences of such a habit, which is as unseemly as it is unclean. Teeth so used soon become notched and chipped at their points, and very often split, and the result is that they are in a short time destroyed or totally lost, often before the age of twenty. Parents and governesses should attend to this matter, at the very first, and by insisting on the employment of the scissors, instead of the teeth, they will prevent the baneful practice from becoming a habit. All persons who employ sewing-girls should, also, for the sake of humanity, exercise similar authority in this respect.

It is a common remark, among medical men, that tailors and dressmakers have bad teeth. This is generally supposed to be a result of their sedentary mode of life; but there are many employments equally sedentary that do not produce such an effect, and I have no doubt but that the true cause is the one I have just pointed out.

Such persons as have lost their teeth soon learn from necessity to point their threads with the scissors. I think a little apparatus might be contrived, to be attached either to the table or to the fingers of the left hand, for the purpose of pointing and cutting off threads, so as to supersede the necessity for using either the teeth or the scissors for that purpose.

Except in the upper ranks of society, the cleanliness of

the mouth and teeth is, in this country, strangely neglected. How frequently do we see respectable tradesmen allow their teeth to become disgustingly dirty, while the Negroes are particularly careful of them. Clean teeth are a luxury that the poorest man may indulge in, if inclined, and surely any man who studies comfort and appearance so far as to shave himself and comb his hair but once a week, might at the same time take the additional trouble of brushing his teeth with a little magnesia, which, besides procuring him the comfort of having a clean mouth, may also be the means of averting much pain, and the subsequent loss of his teeth.

TOOTH-ACHE.

This malady (by no means a trifling one) I consider to be entirely a physician's case. It is scarcely equalled in intensity of pain, or rather agony, by any other to which the human body is liable. It is often the mere symptom of serious affections of the head and stomach, or of the nerves themselves, as in neuralgia or tic-doloreux, requiring considerable attention to discover and remove the exciting cause. Happily, in a great majority of cases, the malady is local, being caused by exposure of the nerves in decayed teeth and stumps, and admits of remedy by topical applications to the parts affected. Its violence renders the patient eager to try any remedy which may be proffered for its alleviation; hence many young persons (for it is the young that are chiefly affected with tooth-ache) have their sound teeth ruined by their endeavours to alleviate the pain of a diseased one, and the same remedy which would be harmless, if not efficacious, in the hands of a skilful medical practioner, when employed injudiciously by the patient himself, or by an empiric, may not only prove ineffectual,

but occasion the most pernicious consequences. This is the chief misfortune to which the teeth of persons resident in the country are liable. I am frequently consulted by persons whose teeth have once been beautiful, but which have in this manner been entirely ruined, all the front teeth (usually the most durable) exhiting black spots of decay, and on inquiring the cause of this melancholy sight, have invariably found that it has arisen from the use of stimulants to cure the tooth-ache, particularly oil of thyme, oil of cloves, &c., which are generally recommended as specifics. A knowledge of the mischief done by these nostrums, has induced me to point them out, in order that persons residing at a distance from medical advice may avoid them, and avail themselves of the following simple remedies.

In slight cases the best topical application is a little lint or cotton soaked in laudanum (tincture of opium) or compound tincture of camphor repeatedly applied to the tooth or stump.* The general treatment is the same as in cases of cold, viz., low diet, vegetable laxatives, bathing the feet in warm water, and using means to promote perspiration.

In severe and protracted cases, hold the mouth over hot water. Cloths wrung out of it, with a handful of camomile flowers wrapped in them, may be applied to

* I have for many years prepared an odontalgic remedy from adoyne medicines, that is generally successful in removing local tooth-ache, and which I find particularly serviceable in allaying the pain in hollow teeth and stumps, preparatory to their being properly stopped. Many apothecaries keep a tincture for tooth-ache.

The most recent remedy is CREOSOTE, a fluid possessing considerable antiseptic properties. It was first employed on the continent as a sedative and anodyne. When received into the stomach in improper quantity, it is capable of producing deleterious effects, and is therefore little adapted for popular use: it should only be used under medical superintendence.

the cheek. Should the pain be accompanied with throbbing, it indicates that the inflammation is about to terminate in suppuration, which will be greatly promoted by warm fomentations. On suppuration taking place, the patient is generally relieved, and the matter escapes either by the socket of the tooth, or through the medium of a gum-boil.

In cases where the malady is caused by a decayed tooth or stump, which is *useless in mastication,* the sooner it is extracted the better, for besides the continual liability to pain, it is apt to affect the sound teeth, as well as to injure the breath and stomach.

In chronic and rheumatic cases, in addition to the above-mentioned remedies, a piece of ginger or pellitory of Spain may be kept in the mouth. When the pain subsides, stop the tooth with bees' wax, or (for *permanence*) with gum-mastic, softened in the mouth or in warm water, which by shielding the nerve from the external air, will prevent irritation : all corrosive acids, as vitriol, aquafortis, spirit of salt, &c. are improper applications, their destructive qualities endangering the other teeth ; so, for the same reason, are all essential oils, as oil of thyme, oil of rosemary, &c.

The only principle on which cure or alleviation can be effected is the causing by means of *warm stimulants,* a flow of saliva from the mouth, or deadening the sensibility of the nerve by the application of opiates as already noticed.

The preventive treatment consists in keeping the hollow teeth well stopped, avoiding the use of acids and pepper, particularly cayenne ; guarding against cold, sleeping (occasionally) with flannel round the jaws and ears, and keeping the feet at all times warm, with due attention to the state of the bowels. When the pain has ceased and in-

flammation subsided, and where the aid of a surgeon can be obtained, the hollow tooth should be properly stopped.

With regard to the tooth-ache, so common in the early stages of pregnancy, my experience leads me to infer that sound teeth are seldom, if ever, affected by this cause; it is only the general stimulus discovering a diseased tooth or stump, which perhaps had not been before observed. Pregnancy can never occasion caries, and to attribute the loss of sound teeth to the fulfilment of a function highly favourable to health, would be to place nature in contradiction to herself.

Preservation of the Teeth by Mechanical means.

As long as appearances are preserved by the presence of the front teeth, the loss of the side teeth, or grinders, is frequently viewed as a matter of little importance. This is a great error, for it is the presence of the grinders which keeps the mouth sufficiently open to prevent the front teeth from coming in contact during mastication. When, therefore, the grinders are lost, and their places are not supplied by artificial means, the front teeth soon become either worn away, or loosened and pushed from their sockets.

Few persons are aware of the cause of losing their front teeth. Some attribute the loss to a local defect in the teeth themselves, and others to constitutional causes. They seldom or never reflect that the front teeth were not intended, and hence, are not adapted for masticating purposes, which invariably destroy them. The entire process of mastication belongs to the grinders, and the only function which the front teeth are intended to perform is com-

prised in the word "cutting," which their name, *incisores*, implies.

When even a single grinder is lost, the whole of the teeth on that side of the jaw are weakened by the breach which it leaves, and which deprives them of mutual lateral support, and renders them apt to be pushed from their proper perpendicular position, towards the opening, by the opposite teeth. But this is not all; for as soon as a tooth in one jaw, loses its masticating opponent in the other, it begins to protrude from its socket, loosen, and ultimately fall out. So that the loss of one tooth, by rendering its opponent in the other jaw useless, amounts to the loss of two.

When the teeth remaining for mastication are too few in number to sustain the force of the jaws, they are soon destroyed, by being either forced into their sockets, so as to produce disease and absorption, or crushed and broken, occasioning grievous pain, followed by the total loss of such teeth. The front teeth being unprotected, through the loss of the grinders, are soon destroyed in the way before described, and proper mastication being now impossible, derangement of the digestive functions ensues, attended by privation of comfort and loss of health.

Fortunately, the whole of this mischief may be remedied, and the greater part of it prevented, by the timely adoption of artificial teeth. When any of the side teeth are lost, their places should be immediately supplied by properly constructed artificial teeth, so as to prevent the others from slanting towards the opening left by the lost teeth. Artificial teeth, by meeting the natural teeth in the opposite jaw, preserve them by preventing their protruding from their sockets; and mastication being thus restored, health is recovered and preserved. The artificial teeth, by

preventing the jaws from shutting too close, preserve the front teeth, which would, otherwise, be destroyed, by meeting together in the process of mastication.

The object in supplying artificial teeth has, hitherto, been too generally confined to mere show, at the expense of the other teeth; whereas, the whole aim should be to preserve the remaining teeth, and restore mastication, which secures comfort and health. When many teeth are lost, all tampering with the remainder, in the shape of picking and filing, can only increase suffering and hasten the loss of teeth so tampered with. The operator must be perfectly aware of this; but as the continual suffering produces constant visits, and unmerited fees, to the picker, these unhappy patients are the most profitable to him. Such practitioners, instead of pointing out the proper artist capable of affording the only real relief, strenuously advise their patient dupes *against* the adoption of preservative pieces of artificial teeth; for mere tooth pickers, being incapable of supplying this remedy themselves, know that delusion would be dispelled, and their malpractices exposed, if their victims fell into the hands of a competent mechanical artist.

IMPORTANCE OF THE TEETH.

Teeth are parts of great importance in the animal economy; they are necessary for the minute division and trituration of our food, and to render it fit for transmission into the stomach. During mastication saliva is secreted in an increased quantity, which, mixing with the food, enables the gastric fluid to effect the process of digestion in a healthy manner. When this is imperfectly performed in consequence of the loss of teeth, indigestion, and a

variety of diseases are the consequence. Besides this, there is usually great anxiety of mind arising from the change in personal appearance and the loss of comfortable feeling, which subjects the unhappy sufferer to "all the ills that flesh is heir to;" and it is not to be doubted that multitudes of both sexes are prematurely hurried out of existence, after much complicated mental and bodily suffering, originating in this cause alone.

Persons differently constituted will of course suffer in different ways, and in various degrees both in mind and body, but all must suffer from the loss of their teeth. When food imperfectly masticated passes into the stomach, instead of the natural process of healthy digestion, it undergoes chemical decomposition, occasioning secretions inimical to health, and entailing maladies of the worst description.

The loss of teeth is not only the cause of the loss of health and of comfortable feeling, but the energy, tone, and sweetness of the voice are thus destroyed, while the change of the physiognomy is often such as to occasion the most poignant distress of mind, not only on our own account, but also for those whom we esteem. How often is a fine face changed into an object of disgust from this cause alone! Delicate minds become dejected and reserved, while others are rendered morose and misanthropic, and feeling wretched and comfortless within themselves, impart their unhappiness to all around them. In ARTIFICIAL TEETH, *constructed on sound philosophical principles, and judiciously adapted to the peculiar circumstances of the case,* the unhappy sufferer finds a complete remedy for all the evils attendant on his loss.

The Author's Mode of Supplying Lost Teeth.

I here beg leave to describe the method I have long pursued in remedying deficiencies of the teeth, from one to a complete set,* which have been found to answer all the purposes of the original teeth in mastication, articulation, and appearance, and may also be taken out and replaced by the wearer with the greatest facility, and will remain perfectly secure in their places, by means of *capillary attraction* and the *pressure of the atmosphere,* alone, *which occasions a natural adhesion to the gum,* and renders wholly unnecessary, pinning to stumps, tying, twisting-wires, fastening clasps, springs, or any attachment whatever to the remaining teeth, and consequently, instead of injuring, affords them support, so that the wearer soon becomes unconscious that he uses artificial teeth. These improvements enable me to supply whole or half sets without the spiral springs which are usually attached to such pieces.

Nothing can be more unnatural and ungenial to the mouth than a plate of *metal* passing round the gum, which alters the taste of every substance that enters the mouth; it is a deception, because it is contrary to the nature of things that it can ever fit the gum: but it can be easily and quickly manufactured by common workmen, being struck up with the *hammer* on a brass mould, which is not the work of an artist, but that of a labourer. It is an *artist* that engraves a DIE, but a labourer, or the steam-

* As some persons are under an apprehension that they must be put to great pain and inconvenience by the removal of teeth and stumps, and other painful operations, before they can be supplied with artificial teeth, I feel it incumbent on me to remove this error, so far as it relates to my system, which requires no removal of teeth or stumps, or any pain or inconvenience whatever, any more than if the article in question were an ordinary piece of dress.

engine, that strikes the coin. As artificial teeth on metal plates can never have the least adhesion or affinity to the gum, they must be retained in their places by hooks or clasps fastened to the remaining teeth, which they soon wear away and draw from their sockets. When this is accomplished and nothing remains on which to fasten the artificial teeth, they are then swung or suspended in the mouth by SPIRAL SPRINGS, which a certain mineral-tooth quack (in praising spiral springs) justly compares to *the chains of a draw-bridge*. Spiral springs torture and distort the countenance, and the united effects of galvanism (produced by the continual presence of metal in the mouth) and the unnatural strain of the springs, induces a disposition to paralysis of the muscles of the lower jaw.

The mechanical friction and elastic strain on the teeth, and particularly the galvanic influence exerted on the mouth and teeth in contact with the metallic plates, producing and keeping up a morbid irritability of the mouth, tongue, and fauces, often amounting to constriction, are entirely avoided by my method, as the material which I use is the tusk of the hippopotamus, (either with or without natural teeth,*) the only innocent and tasteless substance that feels comfortable and congenial to the mouth.

PHILOSOPHICAL PRINCIPLES *on which* ARTIFICIAL TEETH *are formed.*

To give entire ease and comfort to the wearer, the artist

* The things called Mineral or Jews' Teeth, are plentifully manufactured of delf or china, and sold at from three to five shillings per dozen, but they always look like what they are, and can never be mistaken for teeth. One of the many objections to them is their acting as a whet-stone on any of the natural teeth they come in contact with, and quickly wearing them away.

must be capable of carving a *piece* to fit the gum so perfectly *air-tight*, that it shall adhere and remain securely firm in its place for the purposes of mastication, &c., by the mere force of *capillary attraction* and the *pressure of the atmosphere*.

These principles have been frequently described, yet few people give credence to them as applied to artificial teeth, although nothing is more easy, correct, and natural. The common water-pump acts on the latter principle, and there are no other principles on which artificial teeth can be constructed that will not soon destroy the remaining teeth.

In the introduction of any thing new as a science, there is wanting a corresponding language by which it may be expressed, in order that it may be described on paper so as to be understood by the reader. Capillary attraction and atmospheric pressure may be thus explained.

Capillary attraction is the principle by which a fluid is strongly attracted between closely fitting surfaces, and the closer the surfaces approach each other, the more strongly do they attract the fluid, which thus expels and excludes the air. It is by capillary attraction that water rises into and fills a sponge.

Atmospheric pressure, which was formerly explained by means of the axiom, that *nature abhors a vacuum*, is owing to the weight of the atmosphere, which causes it to bear on all bodies near the surface of the earth with a pressure of about fourteen pounds on each square inch.

On my principle of supplying a deficiency of the teeth, the artificial piece being fitted close to the gum, the natural moisture of the mouth is affected by capillary attraction, the moment the piece is introduced into its place; and the moisture being drawn in, between the piece and the gum,

the air is driven out, and the air being thus excluded, the atmosphere acts with a force in proportion to the extent of the surfaces in contact, in keeping the artificial piece in its place. This force, even on a small piece, is considerable, and on large pieces frequently exceeds thirty pounds; yet even in these cases the wearer feels no pressure beyond secure adhesion. The piece itself seldom weighs above half an ounce, and is easily removed, at the pleasure of the wearer, by merely raising one of its extremities with the tongue.

One of the most familiar instances of the joint effects of capillary attraction and atmospheric pressure is perhaps that exhibited by the school-boy with what is called the *sucker*. This toy consists of a string passed through the centre of a piece of thick leather soaked in water, which being pressed on a large stone, adheres to it so firmly that the stone may be lifted up by means of it, and suspended in the air.

Pieces of teeth made of the tusk of the hippopotamus feel in every way congenial to the mouth, and cannot be distinguished by the tongue from the natural gum and teeth; and being fitted in the manner just described, adhering to the *gum only*, afford support to the remaining teeth, which are let into grooves accurately formed in the piece for their reception. This prevents tooth-ache, and other painful sensations, by shielding tender teeth and stumps from change of temperature and extraneous matters. The jarring of the *front teeth* on each other is obviated by the piece preventing the mouth from shutting too close. Mastication and articulation are restored, and the premature appearance of age and deformity completely removed. When a few weeks have familiarised the wearer to the change, he becomes almost unconscious that he

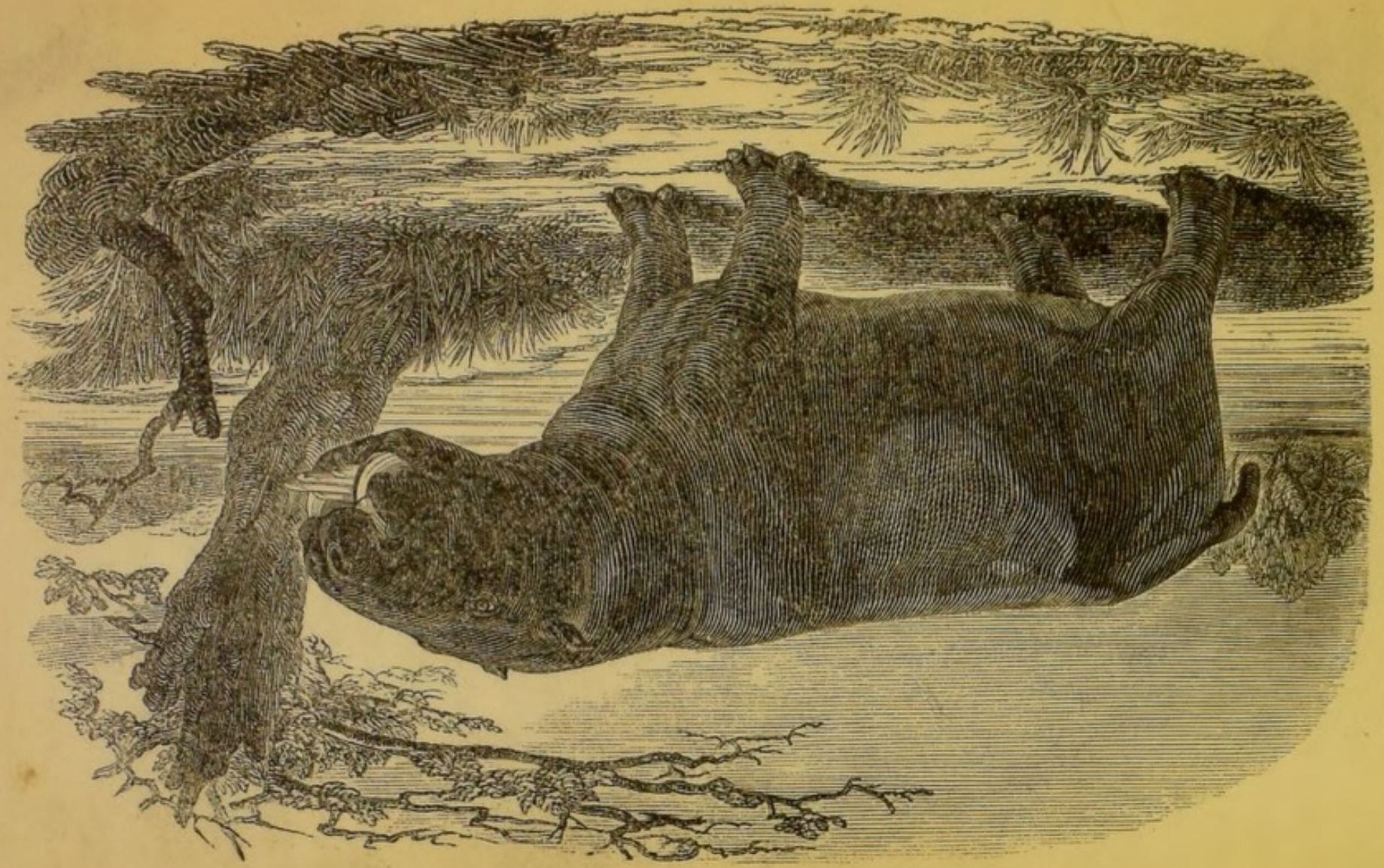
uses artificial teeth; and as cheerful spirits return with health and comfortable feeling, happiness, "the end and aim of our existence," is restored, and life prolonged and enjoyed, perhaps, ten or twenty years beyond the period to which it would otherwise be limited.

The Hippopotamus.

The annexed engraving is a representation of the Hippopotamus, taken from the stuffed specimens in the British Museum. The great interest attached to this animal on account of the superiority of its tusks over every other material that can be used for the construction of artificial teeth, seems to render some account of him necessary in order to satisfy public curiosity with regard to his habits and peculiarities.

The following account of this animal is extracted from the *Conversations Lexicon.*

"There is but one species of the Hippopotamus now existing, though the fossil remains of four other kinds have been discovered. He is fully equal to the Rhinoceros in size and not less formidable. He has four cutting-teeth in each jaw; those in the lower jaw straight and pointing forward nearly horizontally, the two middle ones being the longest. The canine teeth, or tusks, are four in number; those in the upper jaw short, those in the lower very long and obliquely truncated. They are sometimes two feet in length and weigh upwards of six pounds. These tusks are in great request with the makers of artificial teeth, as they are not subject to turn yellow. In figure the Hippopotamus more closely resembles an unwieldy ox than any other animal. The male has been known to be seventeen feet in



length, seven in height, and fifteen in circumference. The head is very large, being three and a half feet long. The Hippopotamus is confined to Africa, and abounds most in the rivers and lakes of Abyssinia, Nubia, and Upper Egypt. It is nearly extirpated at the Cape of Good Hope. It appears to have been well known to the ancients. Several of them were exhibited at Rome. Scaurus, during his edileship, had one of them, and five crocodiles, in a temporary lake, and Augustus produced one in his triumph over Cleopatra. The Behemoth of Job is considered to be the Hippopotamus by most commentators. The Egyptians revered it as a divinity, and so do the Negroes of Congo, Elmina, &c. It would be one of the most formidable of quadrupeds were its disposition ferocious; but it is mild and gentle, except when under great provocation. When excited his power is dreadful. He has been known to destroy boats with his teeth, or upset them by raising them on his back. There is no doubt but that he can be tamed. Belou says he saw one kept in a stable which showed no disposition to escape, or to commit mischief. He cannot move very swiftly upon land. When pursued he makes for the water, and plunging in headforemost, sinks to the bottom, where it is said he can move along in the same slow and stately pace as in the open air. The female is often seen in the rivers with her calf on her back. She suckles it like a cow. The males sometimes have terrible encounters with each other, in which one or both are killed on the spot. The Hippopotamus lives entirely on vegetable food, in search of which he quits the waters, and ranges along their banks, committing wide devastation through all the adjoining country. On the banks of the Nile he often defeats all the hopes of the husbandman; whole fields of grain and sugarcane are destroyed, not only by his enormous appetite, but

by being trampled down and destroyed by his stupendous bulk. The flesh is eaten by the Africans; the Hottentots and others are extremely fond of it. The choice pieces are said to be the gelatinous parts of the feet, and the tongue. They are captured in various ways. The Hottentots take them in pitfalls, or shoot them with tin balls. They are also harpooned, but this is a dangerous practice."

The Hippopotamus has thirty-eight teeth in all, of which twenty are in the upper jaw, and eighteen in the under one; there being only twelve grinders in the latter, whilst there are fourteen in the former. The tusks that are brought to this country weigh from half a pound to seven and eight pounds each, and in rare instances even ten and twelve pounds. The best sort for the fabrication of artificial teeth are such as weigh above four pounds, and among these the most preferable are fine and close in the grain, and fresh in condition, such as those of the slaughtered animals which retain their natural oily sap, like transparent ivory. I find the specific gravity of the best kind to be 1·918 ounces to the foot cube, or nearly double that of water, that of ivory being 1·825. The larger the tooth the harder and denser it is in substance, and consequently the more durable in wear, and the better for retaining its colour. One that I now happen to be using weighs six pounds three ounces, and measures two feet seven inches in length, and eight and a half inches in circumference, in the thickest part. Such a tusk would formerly have cost three guineas a pound; but the high price has been somewhat reduced by causing greater exertions to be made to supply the demand*. As the tip

* Teeth inferior in the above qualities may be purchased from eighteenpence per pound and upwards; but artificial teeth should never be constructed of any but the very best tusks, which will on many accounts, be found to be the cheapest in the end.

and the hollow end, which is often nearly half the length, are almost valueless, this tusk will furnish only five full jaw-pieces, which is the principal object to be obtained, each weighing about half an ounce when finished. The weight of the whole tusk is thus reduced to about two and a half ounces, when worked up, and all the rest is waste. This brings the prime cost of the material to nearly double that of gold plate, when used as a substitute in the construction of artificial teeth, in which there would be little or no waste at all. But the cost of the material is hardly worth calculating in a work of art, the real value of which must ever consist in its perfect adaptation to the purpose for which it is intended.

APPENDIX.

As the chapter on the Extraction of Teeth, and on the Instruments used for that purpose, is chiefly intended for the perusal of medical readers, I have purposely placed it in an Appendix at the end of this little work, that it may be omitted by such non-medical readers as may think the subject more disagreeable than interesting.

Extraction of Teeth.

This operation can only be well and safely performed by a regularly educated surgeon, possessing a knowledge of the structure and anatomy of the teeth, and their insertion into the alveolar processes; and it is much to be regretted that a large majority of the profession have studiously avoided it with an aversion so strong, as to induce them to hazard the safety of their friends and patients in the hands of the most ignorant and reckless quacks, who are more bold and less scrupulous than the tutored surgeon, because ignorant and unaware of consequences. The extraction of teeth is, unfortunately, an operation, to the performance of which no length of time nor extent of practice seems ever to reconcile the surgeon; and to many practitioners it is nearly as disagreeable as to the patient. Surgeons, who would not hesitate to perform a serious and extensive operation on soft parts, shrink from ex-

tracting teeth, which is in fact, the dislocation of the most firmly united bones from each other. However, like all other operations to which the frailty of our nature subjects us, it must be performed by some one, and it is desirable, for the sake of humanity, that surgeons, by undertaking the operation themselves, should acquire that confidence and dexterity which practice alone can give, and thus rescue suffering humanity from the dangerous hands of self-constituted surgeon-dentists. There are circumstances continually occurring which render it not only improper, but sometimes highly dangerous to attempt the extraction of a tooth*; and the operation itself, although so common, is by no means a trifling one, whether we consider the suffering it is intended to relieve, the nature of the process, or its occasionally lamentable consequences in the hands of non-surgical practitioners, who view the operation in no other light than as one requiring physical strength.

This class of operators, by way of showing superiority, think it beneath them to be at the trouble of using the lancet to separate the gum from the tooth to be extracted, and, from this ignorant and unfeeling practice, their unfortunate patients often have their gums torn and lacerated, occasioning sore mouths and stiff jaws for weeks after the operation. In cases where dead teeth and stumps are in the course of being expelled from the jaw by the natural process of absorption, there is seldom much attachment to the surrounding gum, if any; but it is quite otherwise in cases where no absorption has taken place.

* It is not an unfrequent occurrence for a patient to mistake a constitutional for a local case, and to apply to the dentist instead of the physician, which a dental-surgeon will immediately discover, and direct the patient accordingly.

I have seen cases where, disease having been neglected, and allowed to proceed for years, the gum had become indurated and cartilaginous to a considerable extent round the teeth, (to which it was strongly attached): the attempt at extraction in such cases would have been highly dangerous, and therefore I have been obliged to adopt the tedious process of literally dissecting the tooth out of its bed of disease.

In other cases where the gum had been in the state just described, which had been disregarded by the operator, it was torn away to a great extent with the tooth, occasioning a dangerous hæmorrhage, from the vessels having become greatly enlarged by long disease, and leaving nearly an inch of the surface of the alveolar process of the jaw-bone completely bare and exposed, which led to a long and disagreeable exfoliation in the mouth before the parts could be brought to the condition of being covered by the gum.

In conclusion, I would wish to advise, first, that when the proper degree of force has been applied to a tooth, or the remains of one, without producing the least tendency to move or loosen it, the operator should desist, as there is reason to believe that an anchylosis has taken place; and this is the more likely if the disease has been of long standing. There are some persons with almost all their molar teeth in this state, particularly between the ages of forty and sixty. The young surgeon must not consider the result of such a case to be a failure on his part, and the patient will have reason to be grateful for his prudence.

The second case, demanding equal caution, is where the gum and membranes of the tooth have, from long-neglected disease, become cartilaginous. The tooth generally appears

a little raised from its socket; the parts about the neck of the tooth are enlarged; the gum swollen, of a dark, unhealthy appearance, and the whole mass of a cartilaginous consistence. There is no part of the human body where disease is tolerated and neglected so long as in the teeth; and when their situation is considered, namely, in the mouth, it seems truly astonishing. The case under consideration is generally the result of ten or twenty years' neglect of the disease; and when it has arrived at this stage, it is almost incurable. The patient must await the *vis medicatrix naturæ*; and when the natural expulsion has commenced, it may be assisted. To extract such a tooth might expose the patient to a dangerous, perhaps a fatal hæmorrhage, which unfortunately sometimes happens, when surgical skill of the highest order cannot be promptly procured to take up the arteries.

The forced action of repeated inflammations in parts long diseased not only increases the size of the arteries, but creates new ones, and frequently induces the peculiar disposition to ossification. Such arteries as are involved in the cartilaginous substance adhering to the tooth, are necessarily ruptured when it is extracted; and being preternaturally enlarged, and more or less ossified, have not the power of spontaneous contraction; and hence these fearful hæmorrhages.

As this disease is confined to the parts below the gum, the tooth is often entire, although, being always dead, it is generally of a bad colour, and more or less movable.

The only thing the surgeon can do in this case is gradually to disengage the tooth from the surrounding gristly gum with an instrument of a suitable form, repeating the operation from time to time at intervals of about a week, cautiously working the instrument deeper into the socket

each time of operating; and for this purpose the semi-circular lancet (Plate V. Fig. 1, the shank of which may be bent to suit the convenience of application*,) will be found well adapted. Indeed, the lancet should be almost the only instrument employed in removing such a tooth. This course often induces, and always assists, a natural expulsion, and the case becomes both sure and safe. Still, no violence must be used, and we must wait until the tooth can be gently removed. No danger need be apprehended from the vessels that enter the fang of the tooth to supply its nourishment; they have long ceased to be blood-vessels, and have become gristly, connecting the point or points of the fang with the bottom of the socket. Indeed, this is the only connexion that many loose teeth have with the jaw.

The arteries to be feared are those which pass across the fang of the tooth near its bottom, and which are involved in the cartilaginous substance adhering to the fang of the tooth as before described.

These two cases are easily distinguished from each other. In the first the tooth is never entire, but has generally lost its crown, or the greater part of it, and is not in the least movable in its socket: whereas, in the second case, the gum appears dark and unhealthy; the tooth is often entire, but is always more or less *movable*, which is the great mark of distinction. Both cases originate from the same cause, viz. long-neglected disease of the teeth and gums.

The pain is not confined to the tooth in either case, as in acute local toothache, but affects the whole side of the jaw, partaking more of a nervous or rheumatic character,

* Lancets for this, and similar purposes, might be readily got up in the manner of the steel pens.

and should be treated as such; at the same time, lancing the gums, and the topical application of anodynes, generally procure relief.

New Extracting Instruments.

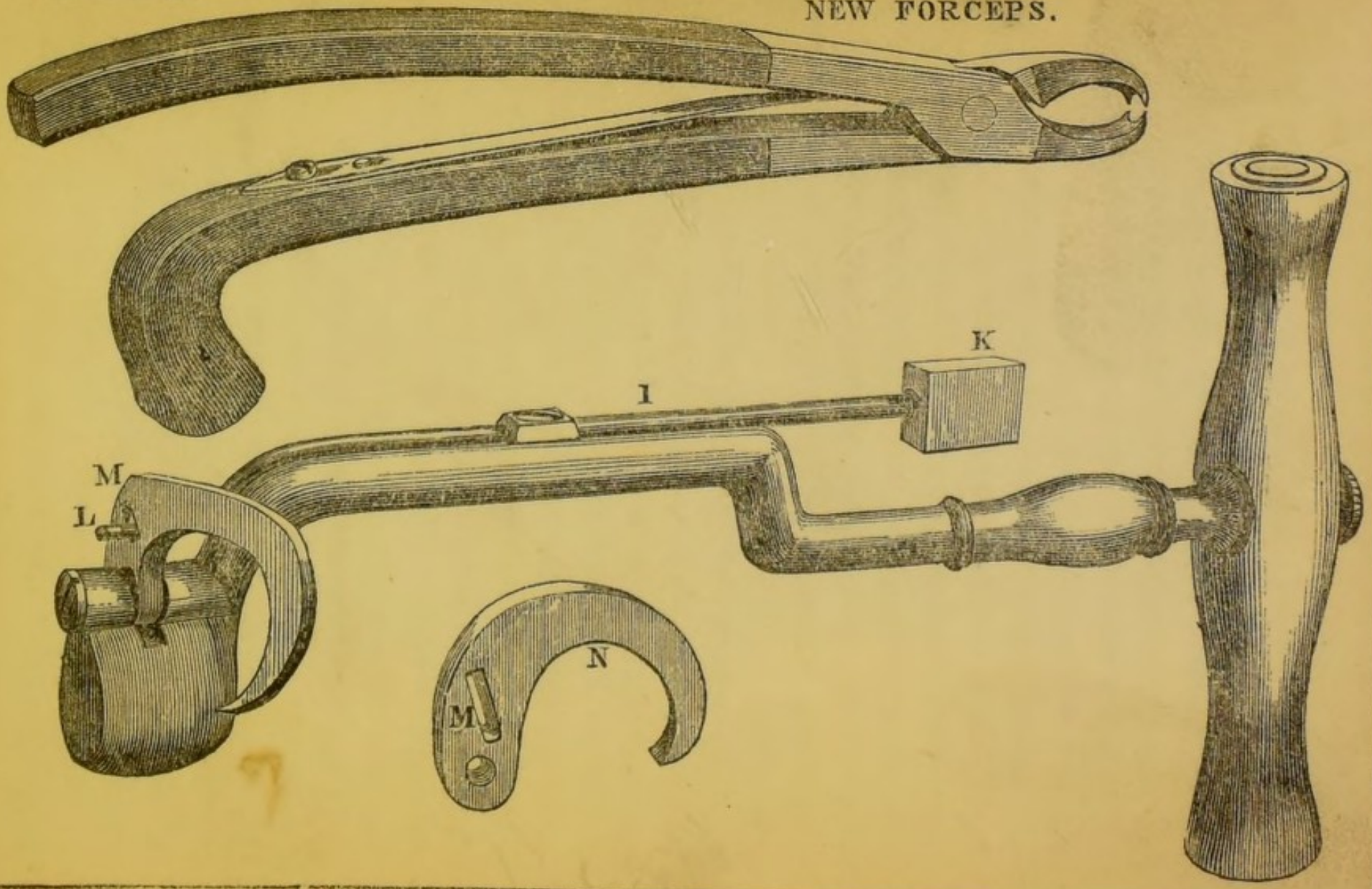
These instruments are with the greatest deference submitted to the medical profession generally, and should they be found to possess any merit, or be the means of suggesting improvement in the operation of extraction, I am perfectly aware that the medical world will fully appreciate the advantage, nor consider the slightest advance as trifling or insignificant when the object aimed at is the abatement of human suffering.

Upwards of twenty years ago, feeling the want of certain instruments, I was occasionally in the habit of making them for myself; and the circumstance of never having employed an instrument-maker has probably been the unintentional cause of these instruments remaining so long unknown to the public, and confined to my own practice. I now publish them to the medical profession, and hope they will prove as useful to others as they have been to me.

The KEY-INSTRUMENT is of ancient construction, and in common use for the extraction of molar teeth; and this is the best proof of its utility and excellence. It is therefore desirable that the due proportion of the parts of this valuable instrument should be properly understood and attended to, both by those who make, and those who use it. I shall therefore endeavour to point out what the proportions ought to be, together with some additions and improvements intended to give greater facility to its application, and more scope and certainty in its use.

PLATE A.

NEW FORCEPS.



The distance between the centre of the claw joint-hole and the base of the fulcrum should be from six-tenths to six-tenths and a half of an inch (Plate B. Fig. D.). When the distance is *less* than this, the pull on the tooth is lateral, and does not partake of the perpendicular; and when the distance is *greater*, the pull partakes so much of the perpendicular that the fulcrum is apt to slide down the gum, and the claw to slip over the top of the tooth.

The next consideration is the distance of the centres of the joint-holes of the claws from their points. The three claws should measure *six*, *seven*, and *eight*-tenths of an inch, respectively, in a straight line from the centres of the joint-holes to their points (Fig. A B C). The claws should not terminate in three points, as if intended to act on a soft substance, but should terminate in two lateral points, or in a concave, of which the teeth or notches should be fine and close together, like the teeth of a smooth file, which is best adapted to hold a hard substance.

Besides the three ordinary claws, there should be three narrow ones; their points should be about the width of the twelfth part of an inch. When the gum has been properly lanced, these narrow claws may be pushed down, so as to seize and raise stumps seated below the surface of the gum. In order that they may not slip, the points of the claws should be kept keenly sharp.

Cases frequently occur where the tooth or stump to be extracted is overlapped by the teeth on either side, so as not to leave room between them for the width of the ordinary claws; in such cases the narrow claws will be found completely applicable, without in the least endangering the adjoining teeth.

In order to adjust and press down the point of the claw

on the tooth or stump to be extracted, it has hitherto been necessary to pass the finger into the mouth for that purpose. A very simple contrivance represented in Plate A., which I added to my own key-instrument many years ago, completely obviates the necessity of putting the fingers into the mouth at all; and thus, the light not being obstructed, the operator sees better what he is doing. A common claw N is pierced with an oblong hole M, in which the end, L, of the steel lever, I, acts; the lever moves on a screw fastened into the shank of the key; the other end of the lever, K, on which a piece of ivory is fixed, is moved to either side by the fore-finger and thumb of the operator, by which the claw is made to open and shut like the blades of forceps; and when adjusted, may be made to press so hard as to prevent its slipping off the tooth or stump in the process of extraction.

This simple apparatus has the advantage of being easily added to any common key-instrument now in use. The claw represented in the instrument is one made on purpose to suit the new arrangement.

PLATE B.—Represents a modification of the instrument shown in Plate A.

The proportions of the key-instrument and its claws, which are applicable to this in common with other key-instruments, have been already described.

The whole length of the upper shank G of this instrument is pierced with a cylindrical hole; in this is inserted a MANDRIL F, about half an inch of the outer end of which is filed flat to fit a corresponding joint-hole in the claw, into which it must fit so tight as to leave no shaking. The mandril acts as a pivot or axis for the claws to revolve on. The other end of the mandril which projects beyond

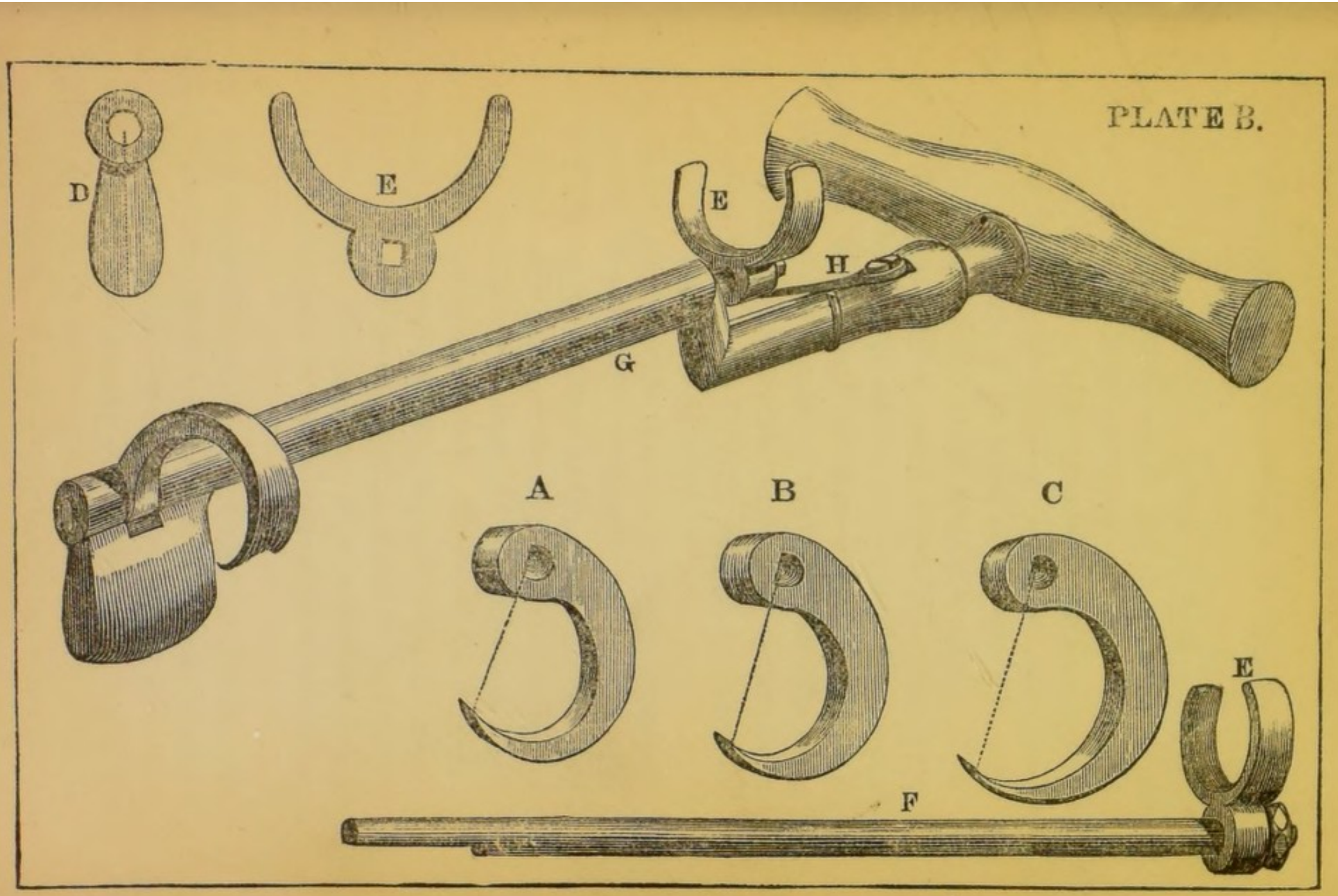


PLATE B.
D
E
E
H
G
A
B
C
E
F

the hole of the shank next the handle, is squared for the reception of the DIRECTOR E, which is made of silver, and secured in its place by a steel nut. The true size and form of the director is shewn in Fig. E. Its thickness or lateral depth is *three-twentieths af an inch.* The fore-finger of the operator is placed between the horns of the director, which is readily moved to either side, giving motion to the mandril, on the other end of which the claw is fixed, to move up and down with the motion of the finger. The spring H, by acting against the face of the director, just below the steel nut, prevents the mandril slipping back when using the instrument. By pressing down the spring with the nail of the left thumb, the mandril may be drawn back for the purpose of changing the claws; and when pushed forward, the spring snaps up and secures the mandril in its place.

The extreme length of the instrument, from the middle of the claw to the middle of the handle, is *five inches and a quarter*; the length of the cylindrical hole in the shank is *three inches and a quarter*; its diameter is a *full eighth of an inch*; the extreme length of the mandril is *three inches and five-eighths of an inch.* It should fit the cylindrical hole so as to move readily, without being too loose. The external diameter of the pierced shank G is *five-sixteenths of an inch.* The handle is *three inches and a half* in length. Its diameter in the middle is *seven-eighths of an inch.*

The two instruments shown in Plates A, and B, are extremely simple in their construction, and possess great power. The facility with which this power is exerted and modified affords that delicacy of feeling to the operator which greatly contributes to the certainty of the result: compared with the old key, they may almost be termed *self-acting instruments.* Requiring to be of the finest work-

manship throughout, and consisting of extra parts, and these of a nature demanding the greatest care and precision in their manufacture, they must necessarily be more expensive than the common key. The expense, however, of a good instrument will be the last consideration of a man who loves his profession. Some of my medical friends who have used both instruments prefer the first (Plate A.), on account of the shank standing higher above the fulcrum, and, consequently, more free of the front teeth.

Loose molar teeth may be removed with forceps; but those that are firm in the jaw should first be raised with the key, which, in most cases, will be found the safest and least painful course for the patient*. In general the front teeth may be extracted with straight forceps; for which purpose they should be very carefully finished at the points, very concave, or end in two lateral points. The blade of the forceps applied to the inside of the teeth should be narrow that it may be clear of the adjoining teeth. This is particularly requisite for children's teeth, and the lower front teeth in general. Forceps should always have a SPRING between their handles to keep them open. The end of the handle on the same side with the narrow blade should be turned outwards, in the form of a semicircle or hook, for the outside of the little finger to rest in (Plate A.). This gives the operator great purchase in a straight pull, without over-compressing the handles. The distance

* Long forceps or tongs, of enormous weight, are used by some non-surgical practitioners, for the purpose of tearing out molar teeth, by which the other teeth usually suffer in the operation, from being made to bear the weight of the extraction as fulciment, which, together with the ponderous nature of the instrument employed, often destroys them. These irregular practitioners affect to dispense with the lancet, under the pretence of stripping the gum from the tooth by pushing their forceps up; but it is sufficiently obvious, that no part should either be stripped or torn that admits of being divided with the lancet.

Plate. 1.

Fig. 3.

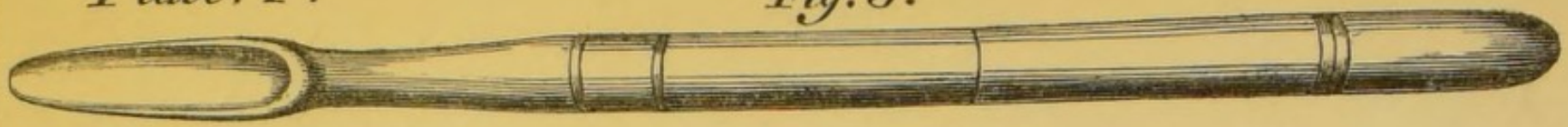


Fig. 1.

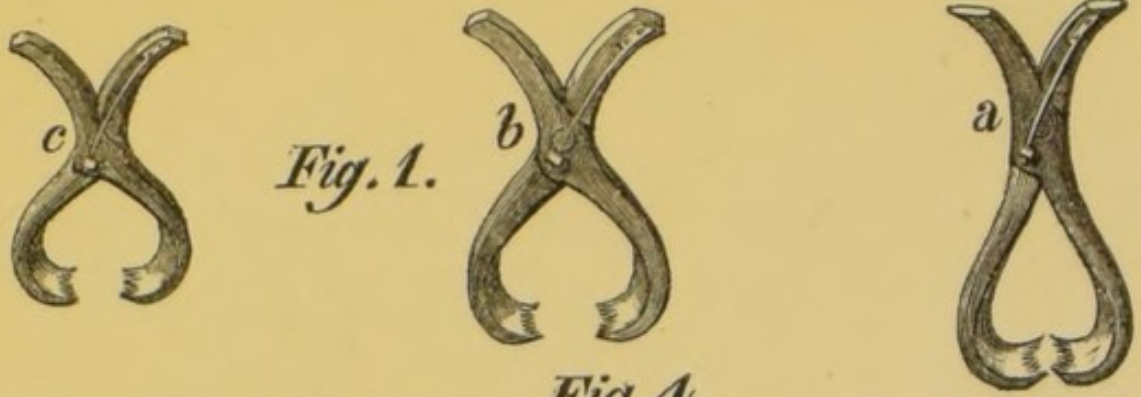


Fig. 4.

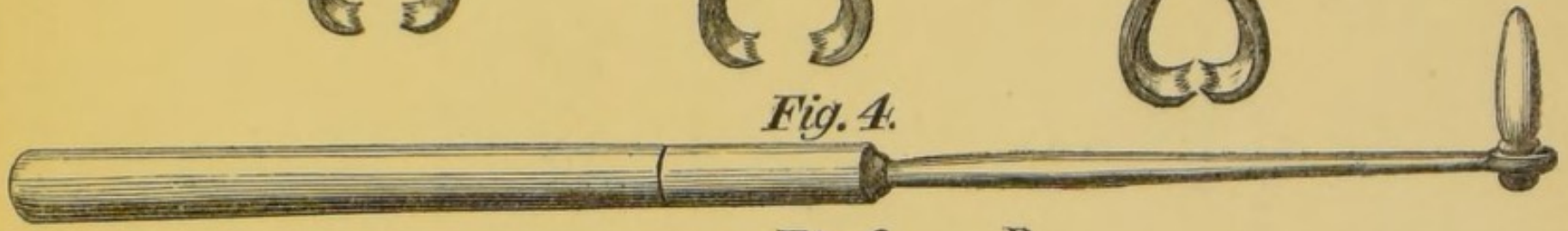
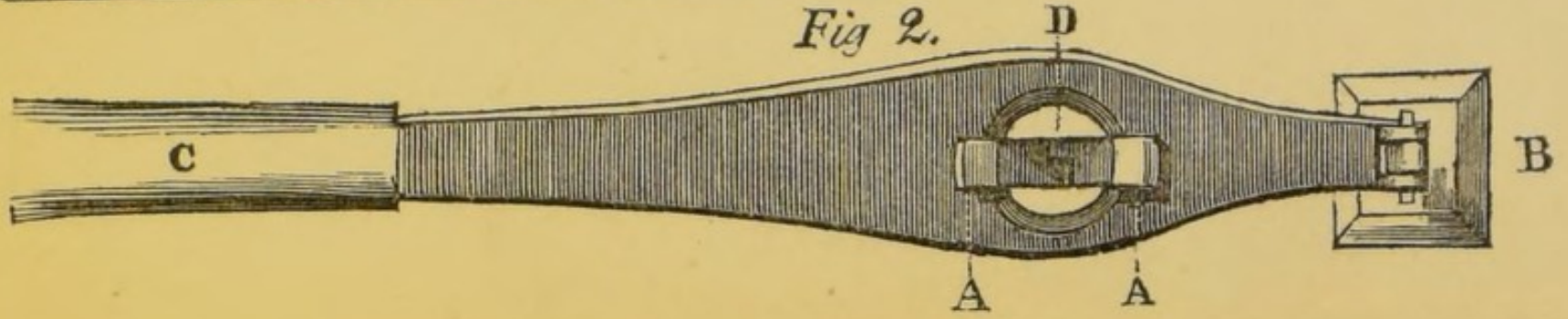


Fig 2.



from the centre of the joint-holes to the points of these forceps should be about an inch, their extreme length six inches and a half, and their weight about nine ounces.

Plate I.

The fundamental improvement in these instruments consists in double claws made of steel and tempered, the nature and action of which is similar to that of the nippers in the pile-driving machine. These double claws are of different lengths, the distance being three, four, and five-eighths of an inch, respectively, from the joint to their points. (Plate I. fig. 1. *c. b. a.*) A small spring made of a piece of clock-spring, is fastened by two rivets to the upper side of one of the claw shanks; the round taper body of the spring acts through a hole in a small stud, screwed into the other limb of the claws immediately below the joint-hole. A small spring of the shape of a V may be attached to the claws by two screws perforating the extremities of the spring, and screwed into the inner ends of the claw shanks. (Plate IV. Fig. 4.) The action of the spring is to close the claws. Spring-claws by their collapsing power, retain their hold of the tooth, or stump, when once applied, and afford facility in adjusting the fulcrum preparatory to extraction; they also supersede the use of the forceps for removing the tooth or stump after it has been raised from its socket, for the double claws themselves act as forceps.

The claws are opened by pressing the point of the finger between the shanks. Plate I. Fig. 2, is a lever made of steel with an ivory handle. The lever is pierced with a round hole, and is attached by a joint at the end to a rest or fulcrum. The shanks, or tails of the claws, are confined and pressed together by the round hole in the lever through which they pass. When the points of the claws are placed in contact with a tooth or stump, and the fulcrum or rest is adjusted, the upward movement of the handle, by compressing the shanks of the claws, causes their points to grasp and hold the tooth with a tenacity that increases in proportion to the force applied, and the tooth or stump is thus raised perpendicularly from its socket. The fulcrum or rest is made of ivory, and the side of it, opposite to the joint, is hollowed for the purpose of tying on a piece of leather, cork, India-rubber, or wood, as the case may require, for resting on the gum or top of a tooth.

Figs. 3 and 4, Plate I. are modifications of gum-lancets hereafter described.

Plate II.

Figures 1 and 2 represent a modification of the elevator. The essential difference consists in the fulcrum B being placed between the handle C and the claws, instead of being placed beyond them as in Plate I. In figure 2 is shown a slit or groove pierced with different joint pin-holes for the convenience of moving the fulcrum B, so as to obtain a proper fulciment.

Plate 2.

Fig 1.

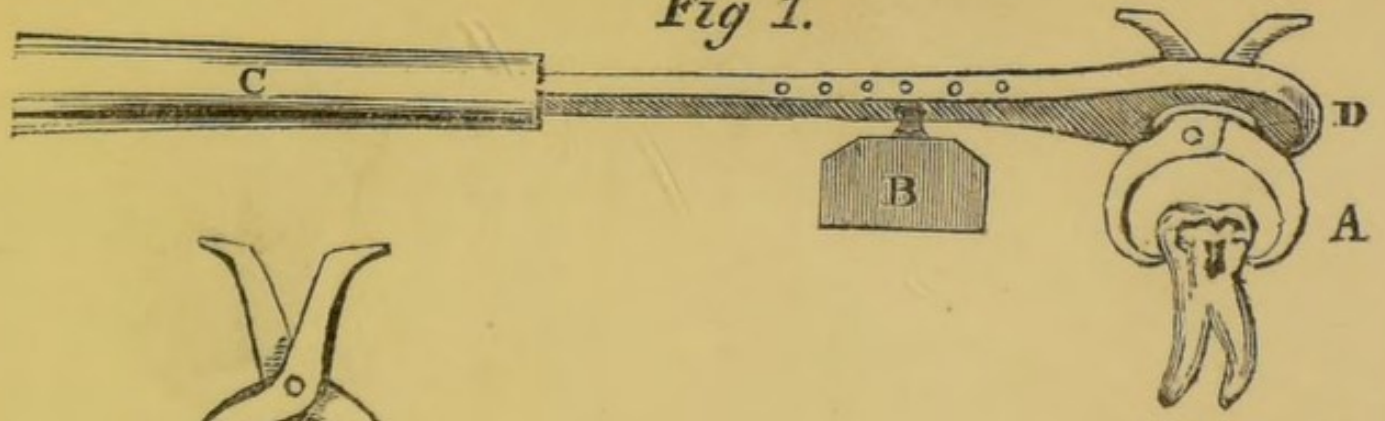


Fig. 2.

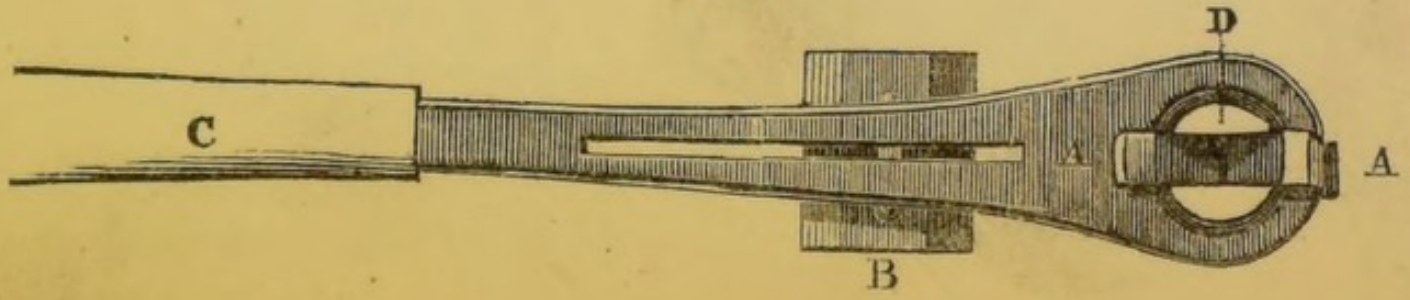


Plate.3.

Fig.1.

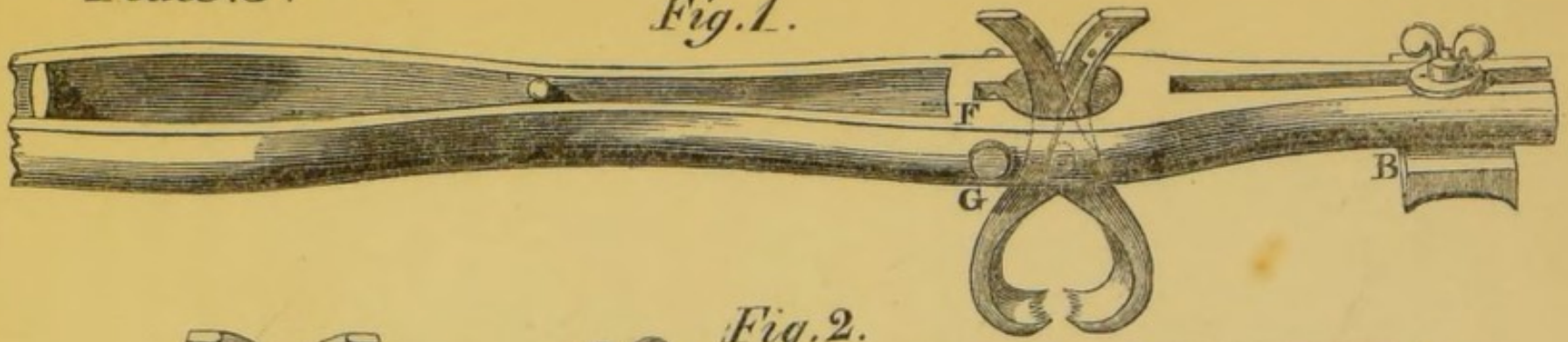


Fig.2.

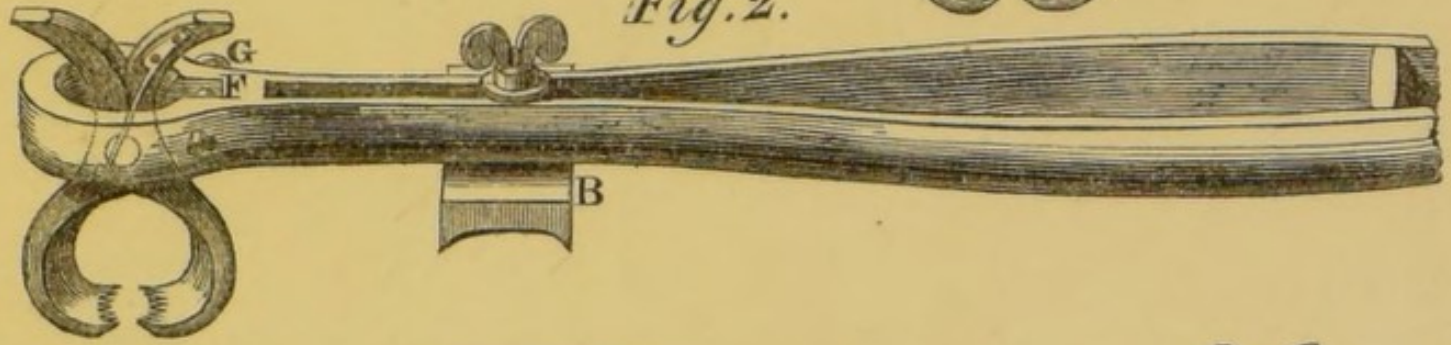


Fig.3.

Plate III.

This is a double elevator, being a modification of the two preceding instruments, uniting the essential properties of both in one, with the convenience of the operator being able to apply or remove the fulcrum and claws from either end while using the other. The extreme length is eight inches,—width at the centre, and where the round holes are pierced, nine-sixteenths of an inch,—thickness, three-sixteenths of an inch. The distance between the centres of the round holes is six inches and a half; the weight is one and three-eighths of an ounce. The small end projects an inch and a quarter beyond the centre of the next round hole; the smallest diameter of the round holes is five-sixteenths of an inch. These holes are bevelled, or rather rounded off on both sides, presenting the internal appearance of a smooth ring made of round wire, which allows the shanks of the claws to act freely and readily. The parts of the round holes cut away at F, Figs. 1 and 2, give facility in changing the claws to suit the particular case; the pin G being inserted fills up the breach F in the round hole, and thus secures the claws in their place. The fulcrum is readily applied or disengaged from either end of the instrument; and moving in a groove, is easily adjusted to the case.

Figs. 1 and 2 represent the two halves of the instrument complete, of the full size.

Fig. 3 shews the instrument complete, on a reduced scale.

I have a double elevator similar to the one just described, but a little shorter and lighter. The distance between the centres of the round holes is six inches, and it weighs only an ounce. Smallness, lightness, and neatness, are great

desiderata in these instruments, which are not intended for the extraction of teeth that require *much force* for their removal. In cases requiring more force, recourse may be had to the key-instrument; and where the greatest power is requisite, perhaps the key with the single claw will be found necessary.

Plate IV.

Shews the application of the double claws to the common key-instrument. This simple apparatus may be added to any key-instrument now in use.

The suspending arm, Fig. 2, is in halves, held together by a screw. A piece of steel swings in the halves of the suspending arm by two pivots.

The swing-piece has an oblong hole pierced in its centre, which receives and compresses the shanks of the claws, in the same manner that the round holes do in the elevator. The claws always hang perpendicularly in the piece as it swings on pivots. The angular parts at each side of the joint-hole rest on the fulcrum of the key, and the attached apparatus may be swung to either side of the key, so as to act either right or left handed, as seen in Fig. 1.

Fig. 3 is a section of the apparatus, and in Fig. 2 the halves of the suspending arms are joined, and the swing-piece, from which depend the claws, is seen in its place.

Fig. 4 are spring-claws for the key-instrument.

Plate. 4.

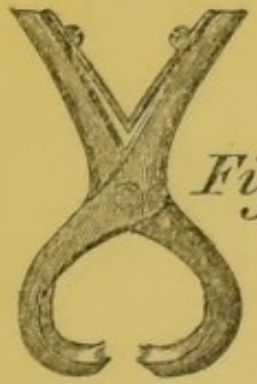


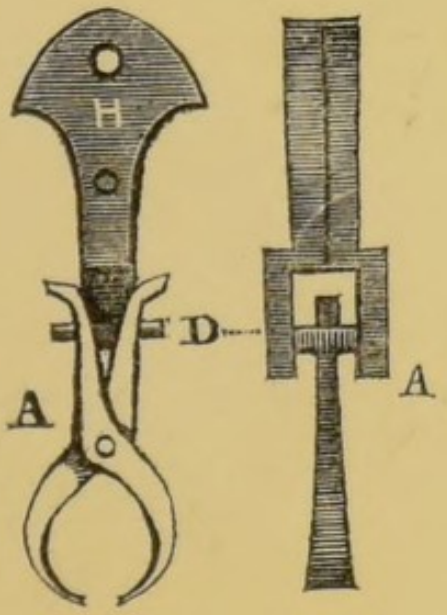
Fig. 4.

Fig. 1.

Fig. 3.

Fig. 2.

Plate 5.



Section of Fig 3.

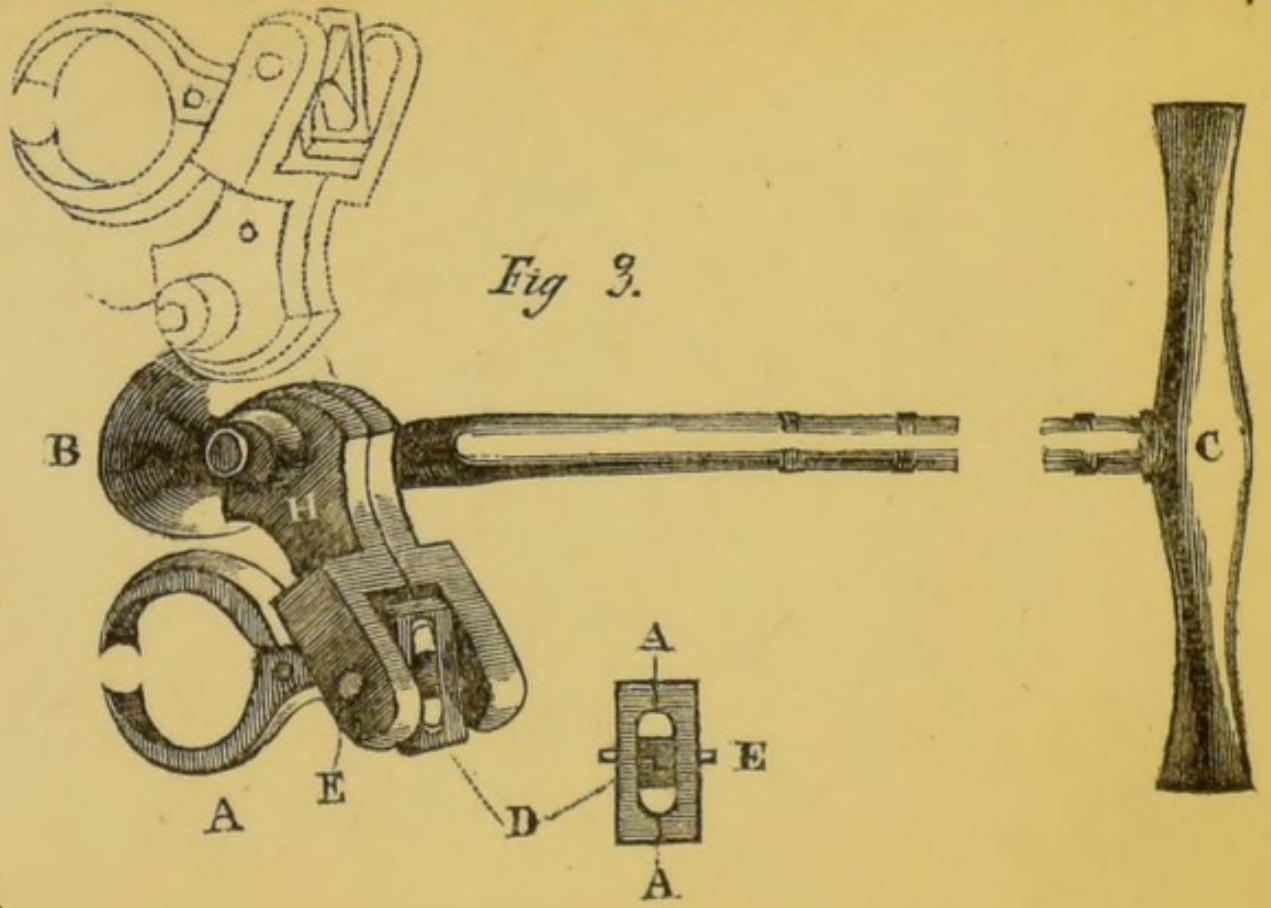


Fig 3.

Fig. 1.

Plate V.

Fig. 3. is another view of the application of the double claws to the key-instrument, with sections similar to Plate IV., and the swing-piece D is shown by itself.

A A the two white semi-circles, denote the extremities of the claw-shanks, and E the pivots on which the swing-piece revolves.

Fig. 1. is a gum-lancet similar to Fig. 3, Plate I., but smaller.

One of the most useful lancets I have made is concave internally, and convex externally, like a cheese-taster, or a sort of pointed scoop, of about a sixth of an inch in width. (Plate I. Fig. 3, and Plate V. Fig. 1.).

The concave side admits the convexity of the tooth, so that the action of the cutting edge is close to the fang, and between it and the socket, without injuring the gum. Many painful teeth and stumps require no other instrument than this for their removal.

I have also been in the habit of using an angular lancet, narrow and spear-pointed, about half an inch long, fixed at right angles in a steel holder, in which it revolves, so as to be used at any angle. Plate I. Fig. 4.

These instruments, with a scythe-shaped lancet or sharp-pointed bistoury, and a curved needle-pointed tenaculum, will meet every possible case in dental surgery.

It is not assumed for a moment that these instruments will supersede any now in use. They are meant merely to serve as auxiliaries in those cases where their employment may be manifestly advantageous. Cases are continually occurring where a particular instrument is, and ought to be preferred, without regard to its ancient or modern construction, provided it be best adapted to our purpose.

Much severe suffering is often occasioned, at intervals, for years by decayed stumps, supposed (at least by the patient) to be incapable of extraction, although palpably loose in their sockets. These tender stumps are apt to break and crumble in the forceps; and when the key instrument is applied, they yield on one side to the pressure of the claw, which consequently slips off, and baffles the operator.

In such cases the double claws will be successful, with great ease both to the patient and surgeon, for they grasp

the stump with a keenness and lightness of which the forceps is incapable; and as their construction prevents their pressure from ever exceeding that which is just necessary for extraction, so there is little risk of breaking the stump, which, being grasped on both sides, cannot slip out of the claws, while the force employed in the operation is rendered comparatively trifling by the instrument acting perpendicularly.

In many cases of tender stumps, the finger or the cedar-wood pencil, rested on the top of the teeth, will be found the most convenient fulciment when using the elevator; or a piece of leather may be wrapped round the instrument, to rest on a tooth. The support of the finger, or a pencil applied under the shank of the key-instrument, will often be found serviceable.

The double claws, whether in the elevator or attached to the key, will be found very useful, especially for the removal of tender stumps. Where the common key-instrument is inapplicable from absorption of the alveolar process, or from its being in a state of inflammation, not admitting the opposite pressure of the fulcrum in its usual situation, the elevator may be advantageously substituted. Hollow teeth, extremely liable to break by the common key-instrument, from the oblique pressure of the claw, being applied only on one side, are not exposed to the same accident in the double claws, where the pressure is equally divided on both sides of the tooth, and the action perpendicular.

Should this little work contribute, in the smallest degree, to the lessening of human suffering, and consequent increase of general happiness, my object will be fully attained.

PRINTED BY RICHARD AND JOHN E. TAYLOR,
RED LION COURT, FLEET STREET.

5