

AMALGAM FOR TOOTH FILLING.

So long as the filling of teeth with gold remains a tedious and painful operation, the public generally, since they have to bear the pain, will naturally prefer the employment of plastic fillings, if such fillings can be made to do reasonable service. Can they?

On this point the professional world is sharply divided, one school of dentists holding that nothing but gold should be used in any case, the other that cheaper and more easily inserted fillings are in many instances, if not always, better than gold. So marked a difference in professional opinion on a point of such vital importance would be a professional disgrace, were it not for the circumstance that the human mouth presents conditions so variable and uncertain that it is impossible to decide in many cases whether the success or failure of an operation is due to the skill of the dentist or his lack of it, to the nature of the filling, to the organic life and condition of the patient's teeth, to the character of the local secretions to which the work is subjected, or to other complications impossible of detection or control. Some salivas seem capable of dissolving anything; other mouths will hospitably receive fillings that could not be trusted at all under the conditions usually prevailing; and even in the same mouth variations in the patient's general health may cause the sudden failure both of filled teeth and of previously sound teeth, that have successfully stood the test of years of usefulness.

Such being the case it is not surprising that dentists of equal intelligence and skill should be found in opposition. Probably the question of gold *versus* amalgam will remain in professional chancery until some lucky inventor hits upon a composition approximating dentine and enamel in physical properties, with the ability of pure gold to withstand the action of every possible food or drink or buccal secretion. Meantime it is interesting to watch the shifting aspect of the professional battle—provided one is not called upon to decide upon a filling for his own failing teeth.

A forceful argument in favor of the use of amalgam under many conditions appears in our excellent contemporary, the *Dental Cosmos* for December, from the pen of D. Van Denburgh, of San Francisco. The writer was educated in the Parly, Harris, and Westcott school of opinion that amalgam was unfit for tooth filling. His use of it began in little faith or hope that it would prove serviceable; and the fact that amalgam had won a place of usefulness in his practice is accounted evidence of its merits. He says: "Many of my own teeth were filled by C. A. Harris, of Baltimore, thirty years ago. A few more in the half dozen succeeding years were filled by Amos Westcott, of Syracuse, N. Y. One alone of these fillings failed, and that repeatedly within the first half dozen years. I would not have the tooth extracted, as advised; and, after having the decay excavated, I prepared a putty of tin, silver, and quicksilver, and myself placed it in the cavity of the unfortunate lower molar tooth. For more than twenty years it has done me as good service as its brighter neighbors. But the point of interest is, that it has done this where gold skillfully used had failed. After a year or two of good conduct by this amalgam filling, I began to feel some interest in it, and in various ways in my laboratory to test some amalgam mixtures.

"I occasionally filled in some mouths (where I might have opportunities afterwards to watch it) some dilapidated tooth that would otherwise have been extracted, some soft or poorly cared for teeth that fillings of any kind were least likely to preserve, and some difficult cavities that were hard to fill satisfactorily with gold. With such a beginning I went on experimenting, testing, and comparing, and now, after twenty years, I still use it, and nearly as often as I use gold."

The mixture used by Mr. Van Denburgh is composed of coin silver, 4 parts; tin, 5 parts; and mercury, *q. s.* The tin is added to prevent the shrinkage experienced with an amalgam of silver, and to form a mass sufficiently hard to resist mastication. The amalgamation is a matter requiring great care and skill, and thorough washing with alcohol is essential.

In the earlier years of his use of amalgam, Mr. Van Denburgh thought he occasionally observed so much superficial oxidation, as, after a considerable time, to injure the edges of certain fillings, and produce a crevice that favored the renewal of decay; but longer experience has taught him that the fault was his own in unskillful preparation and use of the material. He believes now that amalgam will resist all destructive agents in the mouth as well as any dentine or enamel can do; but a caution may be necessary to the inexperienced, not to use so much or so little quicksilver as to make it crumble under mastication; or to attempt to use the mixture in any case after it may be perceived that the hardening process has begun. If this process be once interfered with, though it will be renewed in a degree, no reliance can be placed upon the mixture. A good amalgam filling will not stain any tooth. That anything hurtful to the most delicate or diseased organization can be found in it, or produced from it in the mouth, seems to him the most fanciful nonsense. Any quantity of the metal that might be placed in the mouth would not probably lose by trituration or chemical action a perceptible amount of any or all of its ingredients in a lifetime; and even if such loss were to occur in any way or form, he knows of no reason to suppose that it would be hurtful if taken into the stomach.

As regards durability, Mr. Van Denburgh believes that properly prepared amalgam, skillfully inserted, provides as lasting a filling as can be made with gold, and its advantages in saving time and pain are very great. He says:

"Five minutes are sufficient to insert any amalgam filling,

and nothing more is required to keep the work dry than a napkin or a roll of paper. But not only am I convinced that amalgam, in respect to usefulness and durability, may in any case be as good as gold; I am equally certain that in some cases it is superior, and for the reason I have mentioned, of its more kindly contact and healing qualities in connection with soft dentine. As a mechanical stopping, where a tooth is much weakened by the loss of substance, amalgam brings no strain as gold does; on the contrary, it becomes a binding and supporting protection. Much of the solid substance of teeth is often cut away to secure the better insertion of gold that would be unnecessary for amalgam. Any one with strong masticating organs can 'chew up' a gold coin; so, the most perfect gold filling, when made a projecting portion of a tooth, and subjected to severe mastication, will spread and finally break away. Amalgam has a greater power of resistance, and in many such cases will prove the most serviceable grinder."

It is but fair to note that in the same number of the *Dental Cosmos*, Dr. William H. Truman, of Philadelphia, critically reviews the question of amalgam fillings, and arrives at conclusions much less favorable to their use, though he is far from condemning their use under all conditions. The materials proposed in place of gold will no doubt amply repay by increased durability any extra care in their preparation and insertion; but they all, he thinks, have inherent defects which will have to be overcome before they can be called reliable. They have their place, and probably have not been used as much as they might. Nevertheless, "gold has been used too long, and with too much success, to be abandoned before a better method is at hand. We would ask every professional brother before accepting the teaching and adopting the practice of this new departure, to reflect a moment on the past, and see how often these tidal waves have swept over the profession. At one time it is arsenic, at another amalgam; twice sponge gold has rolled over us, leaving many an aching void; and no doubt the indiscriminate use of the mallet and cohesive gold, the reckless building up of teeth without regard to their position or character, has done much to secure this idea the warm reception it has met."

Accordingly, Dr. Truman advises caution before cutting loose from so faithful and well-tryed a friend and risking professional reputation on "the uncertain ground of plastic fillings." The fault may lie with the operator, and not with the material used.

AN ACTIVE VOLCANO IN THE MOON.

For many years the opinion prevailed that the moon had long since arrived at the stage of physical quiescence: that it was, in short, a dead planet. Neison, in his admirable work on the Moon, takes strong ground against this opinion; and the drift of later observation has been to indicate

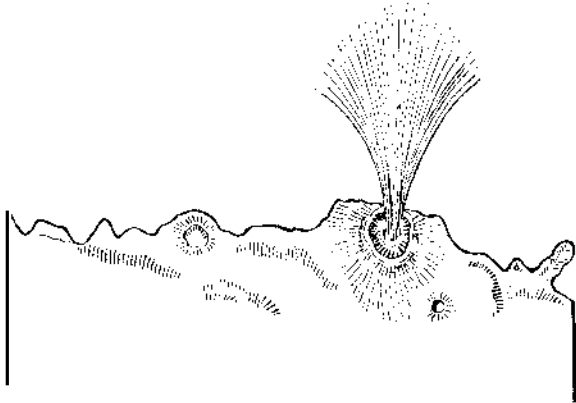


Fig. 1.—SUSPECTED VOLCANIC ERUPTION ON THE MOON. (Seen by Mr. John Hammes, at Oskaloosa, Iowa, November 12, 1878, 8:30 P.M., civil time.)

at least the probability of the progress of active volcanic changes during recent years. In one instance, at least, a large crater has disappeared, apparently by filling from within; but hitherto no astronomer has been fortunate enough to witness anything like an eruption.

The correspondence below puts this question in a novel and most interesting light. The observation of Mr. Hammes seems to confirm the growing opinion of the best of our living selenographers that the moon is far from dead; and from the nature of his occupation the probability of his being misled by any error in the adjustment of his instrument, accidental reflection, or the like, would seem to be very slight. The fact that the supposed eruption lasted, or was watched, for half an hour, by at least two different observers, still more reduces the likelihood of error.

U. S. NAVAL OBSERVATORY, }
Washington, December 4, 1878. }

To the Editors of the *Scientific American*:

I inclose a correspondence in relation to a volcano in the moon.

Mr. Hammes writes to me that he travels around the country with his telescope, showing the moon and planets to colleges and schools, and that he is perfectly familiar with the appearance of the moon, and with the use of his instrument.

The crater seen by Mr. Hammes seems to be, from his drawing, in the vicinity of Baco, Barocius, and Nicolai, as these names are given on Beer and Mädlar's Map of the Moon.

Very respectfully, yours,
JOHN RODGERS,
Rear-Admiral, Superintendent.

KEOKUK, Iowa, November 20, 1878.

ADMIRAL JOHN RODGERS:

I take the liberty to offer you a sketch of an observation on the moon, taken November 12, hour 8:30 evening, seen by me, my son, and several gents who were present, at the town of Oskaloosa, Iowa, about latitude 41° 30'—what I supposed to be an eruption of a volcano. It was only seen for one half hour through my 6½ inch telescope, as plain as any other mountain scenery in the moon is seen, and of the same color. I would like to hear what you think of it.

I remain, respectfully, your obed't servant,

JOHN HAMMES.

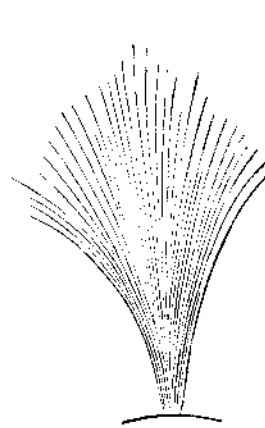


Fig. 2.—APPEARANCE OF THE ERUPTIVE STREAKS. (As described by Mr. Hammes.)

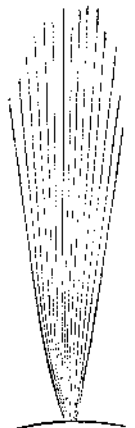


Fig. 3.—APPEARANCE OF THE ERUPTIVE STREAKS. (As described by Mr. Hammes' son.)

[Reply.]

U. S. NAVAL OBSERVATORY, }
Washington, November 23, 1878. }

DEAR SIR: Your report of what you saw on the 12th of this month in the moon is very interesting, so interesting that the fact will not be received by the astronomical world without the closest scrutiny. Your observation will be attributed to some chance dust on the glass, or to some error in adjustment, or to an accidental light reflected from some neighbor's window, or to some other source of error. Therefore please send your observation in full, with the signatures of the gentlemen who saw it with you; and also the certificate of some well known person, governor, mayor, U. S. senator, or other, stating something about the gentlemen who sign.

I presume you, as a man of the world, will understand this: that new facts are received in astronomy with extreme caution, and that in publishing such things, one must take care to give all his grounds for so doing, and leave no means of verification untried. Very truly yours,

JOHN RODGERS, R. Admiral, Superintendent.

Mr. John Hammes, Keokuk, Iowa.

[Testimonials.]

CITY OF KEOKUK, Mayor's Office, December, 2, 1878.

John Hammes is well known in this city, and bears the reputation of an honest and reliable man.

JOHN N. IRWIN, Mayor.
J. C. PARROTT, P. M.
R. ROOT, Dept. U. S. M.
W. T. RANKIN, Ass't U. S. Attorney.

EXPIRING SUBSCRIPTIONS.

The next number will terminate the present volume, and with it will expire several thousand subscriptions. We never force our journal upon any one who does not wish it, or who does not feel it to be money well laid out; hence we apply, in all cases, the strict business rule of discontinuing the paper when the term paid for runs out. This we think is the best plan.

We believe that the *SCIENTIFIC AMERICAN* has been worth during the past year more than it has cost any one of its subscribers—indeed, it is almost a wonder to ourselves as we glance over the pages and see the number of expensive original illustrations it contains, how we have been able to give a weekly journal of the size and quality at so low a price. We are anxious to increase our circulation, and we know that thousands more would be glad to take it, if some one would but invite their attention to it. No other journal has had better friends in this respect than the *SCIENTIFIC AMERICAN*. We feel grateful for all the solid interest which has been shown to us in this respect, and we honestly believe that those new subscribers who become patrons of the paper through the solicitation of some of our old friends and subscribers will receive the thanks of the new patrons for directing their attention to the paper. The publishers certainly will be grateful to all such friends.

QUICKLIME AS A SUBSTITUTE FOR BLASTING POWDER.

Unslaked lime compressed into cartridges, or used loosely and well tamped down in the hole, using water or other liquid to saturate and expand it, is now proposed for use in fiery coal mines. It is claimed that the advantages to be derived from its use are economy in the production of coal; making less slack than by using ordinary blasting powder; lives of colliers are in less danger; the breaking or shattering of coal back of the charge—which is especially characteristic of the use of gunpowder—is avoided; and the quality of the atmosphere is rather improved by its use than otherwise.