

placing their sale under the supervision of a licensed pharmacist, as is required by the law of the District of Columbia, further some provision covering interstate shipment of all such products is badly needed and should be enacted in the near future.

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### THE RELATION OF PHARMACY TO DENTISTRY.\*

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A proper consideration of the subject which has been assigned to me, "The Relation of Pharmacy to Dentistry," includes three factors. The pharmacist and his work, the dentist and his work, and the layman with his needs and desires. In other words, the relationship between pharmacy and dentistry is quite similar to the relationship existing between pharmacy and general medical practice, with the very important difference that the dealings are proportionately very much less between the two former. Pharmacy may be defined as the art of preparing and compounding medicines, while dentistry may be defined as the science or art of caring for the teeth and their diseased conditions. If the work of the dentist, so called, were to be confined to the care of the teeth alone, the relationship between pharmacy and dentistry would be very limited indeed. While the term dentist is almost universally employed, I am pleased to state that there is a very marked tendency in favor of the term stomatologist, this being more in keeping with the practice of one who has for his field of activity the entire mouth cavity.

In a recent visit through the middle West, I noticed many times, and with considerable pride, the inscription "Stomatologist," where the term "Dentist" would formerly have been employed. In this city the leading dental society is known as the Academy of Stomatology, and the American Medical Association has its section on Stomatology. I mention these facts to impress upon the minds of those present that the work of the dentist is no longer confined to the care of the teeth alone, but that his scope properly includes all tissues both hard and soft within the cavity of the mouth. Filling teeth as a means of preventing the progress of dental caries calls for no intercommunication between the dentist and the pharmacist; the treatment of an alveolar abscess, either acute or chronic, can be carried on by the dentist independent of the pharmacist. Prosthetic appliances can be inserted, and, in fact, all work which strictly speaking was formerly considered within the extent of dental practice could proceed with a very few drugs and without any dealings in common between the pharmacist and the dentist. But as already intimated, the dentistry of today is stomatological in extent, and to a great degree prophylactic in character, and while a majority of the operations performed on the teeth are fundamentally mechanical and necessarily so, pathology involving the mucous membrane and a better recognition of the importance of oral and dental prophylaxis in many instances calls for the employment of drugs for their proper care and treatment, and it is chiefly for this reason that there is

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\*Read before the Philadelphia Branch, Nov. 5, 1912.

some common relationship existing between the professions of pharmacy and dentistry.

This brings us very clearly to the consideration of mouth washes and dentifrices. I am already on record as having some rather peculiar ideas about these preparations. Ideas which are in a general way antagonistic to their use, especially to their indiscriminate use. In other words, I believe the ultimate beneficial effect from the use of the average mouth wash or tooth powder to be very much overestimated, and I will deal with the subject from this standpoint. And just here the third factor of the general subject, "the layman," must receive some consideration. Almost daily the dentist is asked for advice as to what tooth powder, tooth wash or mouth wash should be used, and if there is any virtue in any of these preparations, the dentist should be able to discriminate between the good and the bad. Through the admission of one of the foremost pharmacists of this city, I am advised "that if there is any one thing that the pharmacist knows nothing about, it is the proper use of dentifrices, and, therefore, they are not in a position to know what drugs should be used in tooth preparations, or what dentifrices they should sell." After twenty-five years of continuous dental practice, during which time my association with the members of the profession has been quite generous, and after years of active interest in dental society meetings, and the more or less constant perusal of dental journals, I am impressed with the idea, and almost ashamed to acknowledge that the average dentist knows perhaps as little about this subject as the pharmacist. In combination this is rather a deplorable state of affairs, and shows, I believe, the wisdom of the committee in bringing about this symposium. The question before us would, therefore, seem to be, what and when to prescribe drugs for the care of the mouth and teeth.

The pathology of the mouth is quite variable in character, consequently a remedy which will bring about a cure in one case, will result in failure in another, and the prophylactic preparation which will prove to be of value in one mouth will be ineffectual in another. What is needed, therefore, is for the dentist to be able to decide in each individual case just what is required in the nature of a dentifrice or mouth wash, and to write out a prescription for the same which should be compounded by the pharmacist, with the same care usually given to prescriptions coming from the physician. On the strength of the foregoing statements is based the opinion already expressed in regard to the average dental preparation of today. Not that I believe them to be harmful, but because of their total inefficiency in many and perhaps most cases. I have little or no use for the average ready made mouth wash. I believe these preparations to be about as potent as a hair restorer, or a magic ring for the cure of rheumatism. In making this statement I do not mean to infer that there are no mouth washes which contain the proper ingredients to make them act as they are expected to act in some certain cases, but their weakness lies in the fact that they are so promptly eliminated. In other words, they are not in contact with the parts upon which they are intended to act for a sufficient length of time to be of any positive value.

It is now a well established fact that the first stage of decay of the teeth takes place through a decalcification of the tooth tissues, by acids which are generated in the mouth by fermentation, this fermentation being the result of bacterial action. In the process of calcification of the teeth, the various centers of calcifi-

cation spread toward each other and finally coalesce, or at least this is what they should do, but in many instances the teeth erupt before this union is complete, resulting in a congenital defect, represented by the deeply sulcated grooves on the ocular or grinding surface of the bicuspid and molars, and as a result bacterial plagues are formed in these locations, perhaps more frequently than any other point. However, all inaccessible parts, which usually means those parts not subjected to friction, either natural or artificial, are likely to be affected by caries, and it is in such places as these that the mouth wash, if properly compounded, might be of some benefit as a prophylactic measure. I say properly compounded, because we must not lose sight of the fact that the cause and effect of caries of the teeth varies greatly in different individuals, and very frequently at different times in the same individual, so that a dentifrice or mouth wash which might be effectual in one case, or at one time might be ineffectual in another case, or at another time. So far as the care of the teeth is concerned in the way of the prevention of caries, the relation between the pharmacist and the dentist must be through prophylactic measures. While it is an established fact that clean teeth will not decay, it is also equally true that all teeth that are not clean do not decay. There appears what might be termed a predisposition, or a condition of immunity which regulates this to a certain extent. I believe it might be stated with a good deal of certainty and without fear of positive contradiction that caries of the teeth is just about as prevalent in the mouths of those persons who give their teeth regular and systematic care, as it is in the mouths of those who are totally indifferent in regard to the matter, and the question of predisposition and immunity is entirely responsible for this, and within certain limitations, heredity, habits of life, diet, etc., are responsible for this predisposition or immunity.

In making the foregoing statement, I do not wish to be understood as being opposed to oral hygiene. Certainly the mouth which is the gateway to the alimentary canal, of all parts, should be kept free from unclean or septic material.

Dr. Head will perhaps tell you that the abrasive action of the tooth brush when loaded with some tooth powders will in many instances result in a partial destruction of tooth substance, and necessarily in most instances this must first be the enamel. I cannot share in this belief, in fact I am unalterably opposed to such a theory. Occasionally when there has been a recession of the gum tissue resulting in laying bare the root and root membrane, destructive abrasion from the use of the brush might result, but never will such a result follow when the enamel only is subjected to such treatment. In support of this argument it is only necessary to refer to the chemical and histological structure of the teeth when it will at once be recognized that a destructive process can only take place through acid decalcification. Enamel with its 97 per cent. of inorganic matter and with a structural arrangement of the enamel rods or prisms placed on end, and generally at right angles to the long axis of the tooth, and cemented together with an almost indestructible substance makes it by far the hardest structure in the body, and fortifies it with a resisting power against external influences almost beyond limitation, except the influence be a chemical one.

Just one final thought in regard to the relationship of pharmacy to dentistry, and that is in reference to the detrimental effects which frequently follow the administration of certain acid compounds ordered by physicians' prescriptions. I

refer more particularly to the tincture of ferric chloride, the immediate effect being a predisposition to disturb the glass-like finish on the surface of the enamel, which in turn will favor the formation of bacterial plagues. Other acid preparations taken in excess into the mouth without any effort to neutralize would of course have the same effect to some extent.

It will be observed that I have made no suggestions or recommendations in regard to what drugs to employ in dealing with the various mouth-conditions, preferring to leave this to those whose line of thought is more in this direction. If I were to make any suggestions, it would be in favor of the only good mouth wash that I know of, and I do not hesitate to speak of it here. It is not often that I give a public testimonial, because this would be regarded as unethical and unwise, but I am going to disregard this unwritten rule, and testify to the merits of one particular mouth wash, because it is better than any other on the market today. I have no shares of stock in this to influence my boosting it, neither do I distribute it to my patients in the form of attractive samples, so you can see that my recommendation is made solely on the merits of the product.

I shall recommend this first, because I know it to be an antiseptic, a germicide, an alkali, an aid to digestion, and it is even reputed to prevent or retard caries of the teeth. It combines all these good features without containing one ingredient that is in the least harmful to the delicate structure of the mouth. Its action is both physiological and chemical. There are, however, one or two drawbacks to this mouth-wash; it is not always the same. While it is mostly alkaline, it sometimes changes and becomes strongly acid, and frequently the receptacle in which it is kept is at fault, being unclean both inside and out, thus changing its good qualities. These two faults may, however, be overcome with a little care on the part of the producer, whose attention has been repeatedly called to it.

Knowing all this to be true, I do not hesitate to indorse this product, which, however, is not in the public market as yet; it is nature's mouth-wash—the human saliva. My remarks are therefore in the nature of a plea for normal conditions in the mouth, and if these normal conditions cannot be brought about physiologically or by instrumentation, then medicinal agents must be resorted to, and as before stated these should be compounded to suit each individual case.

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#### DENTIFRICES AND THEIR INGREDIENTS.\*

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The question, what ingredients should make up an antiseptic dentifrice, is by no means simple. Chemicals may destroy the acid forming germs but at the same time so lower the natural resistive action of the tissues that the final condition of the mouth after treatment may be worse rather than better.

Clinical experience proves conclusively that unclean mouths exist where there is practically neither tooth decay nor tissue infection, and likewise shows that

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\*Read before the Philadelphia Branch, Nov. 5, 1912.