MEASURES TO BE DIRECTED TO THE INDIVIDUAL SUSPECTED OF BEING AFFECTED WITH THE PLAGUE.

The suspected case should be isolated. The isolation should be all the term implies. Pending the completion of a diagnosis the same care should be exercised as if it were proven to be plague, and as soon as the examination is complete it should be removed to a hospital provided for infectious diseases, where the dangers of infection can be best controlled and where the case can be medically and humanely treated.

The premises in which the case is discovered should be regarded as infected—doubly so if it can not be definitely proven that the infection was contracted elsewhere. The house should be evacuated and be immediately closed. Sometimes, however, the condition of the case is such that it can not be removed; if so, it may be necessary to assume an extra risk and convert the premises into a temporary hospital. As soon as the premises are ready to be evacuated provisions should be made for not only the care and treatment of those sick, but of those who have been in contact with it. These should be under observation in a non-infected place long enough to demonstrate their freedom from infection.

The premises and contents should be disinfected immediately after their evacuation by persons who are thoroughly conversant with the work, by the following methods: (a) by gaseous disinfection; (b) by mechanical cleansing; (c) by chemical disinfectants; (d) by steam; (e) by burning.

Great care should be exercised in the application of measures for the destruction of vermin, not only in the house itself, but in the immediate vicinity. If rats or mice are found dead in these places a bacteriologic examination should be made of these places to determine whether they are infected, as much depends on the thoroughness in which this feature is carried out.

After completion of the disinfection the house should be thoroughly aired. The soil in and around the premises may be such as not to exclude the possibility of its containing the plague bacilli, and if such be the case, it should, of course, be subjected to such processes as would sterilize the surface at least.

Suspects may be divided into two classes: 1. Those coming in direct contact with the case. 2. Those who have not come in contact with the case, but who have lived in the same house or in close proximity thereto. These may or may not be in the incubative stage. If so, the advisability of administering prophylactic injections of anti-pest serum must be considered, or perhaps the protective inoculations of Haffkine.

Too much importance can not be given to the destruction of vermin, and should not in any case be confined to the premises or those contiguous thereto, but should include a careful search for sick or dead vermin in a considerable zone around the infected premises, together with the destruction of all vermin. The crusade against vermin should be conducted for a sufficient length of time to be doubly sure the danger of their infection is past. This does not mean a few weeks, but should be persistent for months, or even a year or more after the last case of human plague.

The crusade against the rat population in San Francisco during the past winter demonstrates that it is infected. Just to what extent it is not safe to say, as the number examined is entirely too small to base an opinion on, but so far it has shown a greater number of infections than has been observed in Japan; in fact, nearly as large as in Hong Kong. It is, therefore, not safe to

say that because no pest rats are found for two or three months the epidemic among rats has disappeared.

There are many rats in San Francisco. Judging from my own observations, together with those of two of my colleagues, the number is beyond computation, especially so along the water front. In the Chinese quarter, fortunately, there are fewer rats. Possibly this may partly explain why there has been so few cases of plague, but even if it were so it does not lessen the danger of the rats becoming infected along the water front. It is safe, therefore, to state that the rat population of San Francisco is stationary, as the few destroyed is a mere bagatelle. What should be done is to institute a systematic and thorough campaign against the rat, which should take in the whole city.

(To be continued.)

[The discussion on the papers of Drs. Calvert and Kinyoun will follow the conclusion of Dr. Kinyoun's paper next week.]

ORTHODONTIC FACIAL ORTHOMORPHIA.

IMPORTANCE OF DIFFERENTIATION IN CASES OF APPARENT MANDIBULAR PROTRUSION.*

WILLIAM ERNEST WALKER, D.D.S., M.D.

NEW ORLEANS.

Quite a little has been written on the etiology and treatment of cases presenting the appearance of protrusion of the mandible, the "chin-cap" treatment being recommended in young subjects and the removal of sections from each side of the mandible in older patients, and of late much has been written regarding the technic of this latter operation.

In a recent article Dr. E. H. Angle mentions a case in which this operation was successfully done in St. Louis¹ and tells of a failure having been made in New Orleans.² I have heard rumors in New Orleans concerning this failure, but have never seen the case.

Much has been written about treatment and a little about etiology, but apparently very little thought has been given to diagnosis, and the object of this brief paper is to emphasize the importance of a correct diagnosis on which to base an intelligent prescription.

It appears to have been taken for granted that the case which has the appearance to the surgeon of being a case of mandibular protrusion must necessarily be such, but I think that by presenting a case illustrating the erroneousness of that assumption, I can make it evident that this is not a fact.

From boyhood this patient was in the hands of a prominent dentist, who more than once was asked if anything could be done to remedy the defect; the invariable reply being "No, except in case the patient be willing to undergo a surgical operation for the removal of a section from each side of the mandible." The patient, at the age of 19, called on me, and my first impression was, as his brother had previously told me, that his lower jaw was very prominent.

Study of the case, however, convinced me that it was very much less a case of mandibular protrusion and very much more a case of arrest of the superior maxillæ.

Without explaining the diagnosis to the patient, he was allowed to return to his dentist, to whom he stated that Dr. Walker had told him that his case was remedia-

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. M. L. Rheln, M. H. Fletcher and Wm. E. Walker.

1. Dental Cosmos, April, 1903.

2. Items of Interest, April, 1903.

ble without a surgical operation, and again the dentist expressed as his opinion that nothing could be done for him except the operation previously mentioned, and that if Dr. Walker could otherwise remedy the defect, and if the patient had confidence, a trial might be made.

I mention these details to emphasize the perfect satisfaction the dentist manifested in his own diagnosis and prescription, notwithstanding its erroneousness, and to thus emphasize the necessity for the word of caution I am uttering, in order that errors in diagnosis may be avoided, for, on the diagnosis the treatment depends, which makes for success or failure.³

The patient has been taking a rest for some months, waiting for the alveolar process to redevelop around the teeth in their new position, which has now taken place and we are about to carry the upper teeth a step further. This waiting was considered advisable in order not to carry the teeth too far away from the bone, and because it has been found that if these periods of rest be given, the teeth can be moved great distances, the alveolar process developing around the teeth in their new position just as it did originally, and as it does after fractures, provided that the teeth are held still.

We know that in some pathologic conditions in adult life there is a great difference in the ability of the alveolar process to reproduce itself, but the movements of the teeth in alternating periods of activity and rest so closely resemble physiologic processes that Nature assists us by placing energetic osteoblasts at our service.

In the present case, the space made by the moving forward of the bicuspids and oral teeth, has been closed by the moving forward of the second molars, assisted by the developing of the third molars for which room has thus been made.

The next step will be to apply an apparatus which I am now constructing and which will have the effect of moving the maxillary teeth forward, using the chin and forehead as anchorage. This apparatus will somewhat resemble a baseball mask, but will have to be worn only during the night, the molars affording anchorage to retain during the day what we have gained during the night.

I hope by limiting myself to this one phase of the subject to so focus your attention on the subject of differentiation as to give it sufficient emphasis to attract the attention of the profession to its importance.

DISCUSSION.

DR. EUGENE S. TALBOT, Chicago—It is necessary to understand the etiology in order to treat these cases successfully. It is unfortunate that in this country the majority of the men treating these cases are merely mechanics. Indeed, one of the best men in the country in this line of work says he doesn't care for the etiology, that it is enough for him to be able to treat the conditions. It requires a great deal of time and study to understand the manner in which these conditions are produced, and in order to study this one particular phase we must go back to the time of Aristotle. Aristotle laid down the law of economy of growth, whereby a structure or organ is lost for the benefit of the organism as a whole. All students in evolution have based their work on that law. This law of economy of growth is illustrated in many structures, but those of the face, jaws and teeth are the most important to us. They are being lost for the benefit of the brain. This is one

cause for so much decay in the teeth, and arrest of development of the jaw results in irregularities. Man in his evolution has atavistic tendencies so that in those patients who are called neurasthenic and whom I call degenerates, in whom there is an arrest of development, there is also frequently excessive development. This is illustrated by the picture of Charles V. of Spain. History records that Charles V. suffered from indigestion all his life; that he could not eat, and that he kept ten cooks preparing foods for him. Two hundred years after his death a photograph was taken of his skeleton in the coffin, showing this type of face. With the mouth closed the upper teeth closed inside the lower jaw. At that time there were no orthodontologists, and therefore he could not have his teeth regulated. The lower jaw is a movable organ, and because of this it is frequently more fully developed than the upper, which, attached to the bones of the skull, becomes arrested in development and causes this marked deformity. It is possible that the lower jaw in some cases will be excessively developed and there atavism enters. If such cases are taken at the age of thirteen, when the alveolar process is in a constructive stage, there is a possibility of moving these teeth and having the alveolar process remain with them. If the correction is made at the age of 20 to 24, there is more force required, producing inflammation in the alveolar process and preventing its restoration. Therefore, I question how far an operator is justified in correcting irregularities of the teeth. I have known patients to suffer from one to three years from nervous prostration as a result of regulation of teeth by dentists who did not know they were operating on neurasthenics. I do not believe the ordinary dentist should undertake to treat these cases, but it should be done by one who is medically educated and familiar with the nervous system.

MR. T. E. CONSTANT, Scarborough, England—Very often in the condition where the upper incisor teeth appear to protrude we find that a study of the etiology results in showing a still greater deformity. In many cases diagnosed as superior protrusion the condition is really one of inferior retrusion. If a good bite is obtained after the teeth have been moved, the result ought to be permanent, but this will depend on how the teeth occlude.

DR. M. H. FLETCHER, Cincinnati—I fully agree with Dr. Talbot in his condemnation of the efforts of incompetent men to do this work. I have had three cases sent to me almost in collapse from the ineffectual efforts of men who apparently understand nothing about the work and who had no conception of the stress to the patient under these circumstances. These cases resulted in absolute failure and a wholesome fear on the part of the patient. The varying conditions of health, and the surroundings at home, have great bearing on these cases. I undertake to see that the child has the co-operation and encouragement of the home people. The child must have normal recreation and not too much study.

DR. H. E. BELDEN, New Orleans—I agree with Dr. Talbot that the operation carried on in adult life does not always meet with perfect success, especially where a good deal of motion is required. It is not only hard to move the teeth, but often difficult to retain them in their new position. An example is the case of a young lady whose teeth protruded so much that she could not cover them with her lips, and she was much disfigured. Ten years ago I brought the teeth back to their normal position with such success that she is often complimented on her fine teeth—but to hold them in position she still wears a retaining band every night. I agree with Mr. Constant that if the occlusion is good we are more apt to have a successful issue. We see many bridges which can not be worn because of inaccurate occlusion. On the other hand, we see bridges that have lost their attachments, and sometimes natural teeth which the patient can remove from their sockets and replace at will, but they can be retained and made use of on account of their bite.

DR. WALKER—Showing how little the treatment interfered with this man's nervous condition, I may remark that he took during the treatment a two years' course of law in one year and graduated. He has not yet secured occlusion. This we hope to obtain later. The patient tells us that he had not

3. Here the patient and others were exhibited, as were also plaster casts, showing the full-front face and profile of the patient before beginning treatment; and also casts of the upper and lower teeth in their relative position at that time; also casts showing the face, front and profile, and the teeth, two months and a half later. Casts were also shown showing the relative positions of the upper and lower jaws at the time of reading the paper, the patient being present for examination and for comparison with the plaster casts.

much pain, a little at the first. The bands worn were always stationary.

DR. M. L. RHEIN, New York City—It is unfortunate that a certain class of men in this country having a false sort of dental education with some mechanical dexterity, appear before the public as advertised specialists on orthodontia. I believe in stomatology as a specialty of medicine, but I am opposed to any further subdivision of the work. I believe that the stomatologist should have the entire care of the individual mouth under his charge and if the distinctive and individual portions of the work are to be divided up for the better method of execution, it all ought to remain under his personal supervision. The amount of damage that is done by men improperly qualified is very great. It is my opinion that work can not be commenced too early in these cases of irregularity. The same principle is brought out here as in the work of Lorenz. The softer the bones are when we handle them, the more easily are they molded and the better are the results. I have attempted a number of corrections after the age of twenty, and the results have never come up to my hope. It seems almost impossible to get occlusion, that is, what might be called self-locking. I have at present under treatment two patients aged 8 and 9 years. The parent had doubts whether to have work commenced at the time, and the opinion of a number of men was sought. A large number of the profession have the idea that work should be delayed until all the permanent teeth are erupted. I take exception to the view that the fixed apparatus for spreading the arch is less painful than a removable one. There is more than one way of applying an apparatus. I know of none that will work so painlessly and so easily as that devised by Dr. Ottolengui. I agree that if the work on the bones can not be done without giving pain and causing nervous tension there is a mistake somewhere, and that much harm will be done the child. These patients come to my office sometimes as often as four times a week without any evidence of nervous depression.

DR. WALKER, New Orleans—Dr. Talbot made a reflection on the effect of this work on neurasthenics. The child referred to is a most decided neurasthenic, but since I have been working on her teeth her health has been manifestly improved daily. As the treatment continued, her mental, physical and nervous condition became better. I think this has been partly due to the self-control I have caused her to exert. Heretofore the least disturbance would cause her to cry. Dr. Rhein has stated that the work should be practically painless. He is undoubtedly right. The old way of regulating with movable appliances did cause a great deal of pain and damage to the nervous system. With the fixed appliance, however, the soreness does not ensue. I have used Jackson's appliances since 1894. It is the system to use when the teeth are coming in. If the teeth are in place, a fixed apparatus is better because a greater force is required than can be secured with the Jackson appliance without producing soreness. I think no one system should be adhered to, but that the good from all should be selected for the case to which it is adapted. We should undoubtedly avoid producing pain on account of the injury to the nervous system. In cases in which not much pressure or a great degree of speed is needed I feel that a removable apparatus may be employed. Mr. Constant is correct in saying that many cases of inferior retrusion are diagnosed as superior protrusion and so treated and the patients, therefore, disfigured. In regard to specialization, I think more will be accomplished by a man taking up a specialty after a number of years spent in general practice, and then working in sympathy with the general practitioner.

A Cheap Method of Removing Silver Stains from White Fabrics.—Moisten for two or three minutes with a solution of bromin 5 in water 500. Then rinse in clear water. If a yellowish stain remains, immerse in a solution of sodium hyposulphate 150 in water 500. Rinse in clear water. This formula has been found especially useful for hospitals and laundries.—*Revue Médicale de l'Est.*

THE DENTAL PULP—VIEWED WITHOUT THE MICROSCOPE.*

THOMAS E. CONSTANT, M.R.C.S.
SCARBOROUGH, ENGLAND.

Before entering on the subject-matter of the present paper may I be allowed to express my appreciation of the honor conferred on me by the invitation this Section of the American Medical Association—an association which enrolls in its list of membership names which are known to and revered by scientists all the world over. The invitation was not accepted without diffidence, for the subject allotted is a narrow one and the investigators many and devoted—indeed, it may safely be affirmed that during the last decade no structure in the human body has been more often or more closely scrutinized than the dental pulp. The majority of the observers have, however, given most attention to those points which require the microscope for their elucidation, and it is partly on that account that I intend to-day to confine myself to the macroscopic aspect of the subject.

The human dental pulp has been arbitrarily defined by an American writer as commencing during the fourth month of fetal existence. Prior to that time it is the "dental papilla." This distinction is convenient, and, although I am ignorant as to whether it has been given general acceptance in this country, for the purposes of this paper I shall adopt it.

At the end of the fourth month of fetal existence dissection reveals the pulps of the milk teeth as translucent gelatinous substances which roughly correspond in shape to the crowns of the teeth which are respectively formed from them. They are generally described as lying in a shallow groove or gutter of bone which is all that exists at that period of what is later known as the alveolar portion of the jaws. The pulps are severally surrounded by a membrane to which they are not anywhere adherent except at their bases. Between the investing membrane and the pulp there is always a fluid which John Hunter likened to the synovial fluid in joints. In the case of the lower animals this fluid is often found in considerable quantity. The membrane is, of course, the tooth sac. What the fluid is I do not know. By stripping the periosteum from the jaws the tooth sacs and their contents can be removed entire from the gutter of bone in which they lie. At this period (fourth to fifth month) when the dental sacs have been thus removed the groove in which they lie is found to be traversed in the incisor region by slight ridges which form the commencement of the alveolar septa between the incisor teeth. On opening the tooth sacs they are found to be adherent below to the tooth pulps and above to blend indistinguishably with the oral mucous membrane. The apices of the pulps show signs of commencing calcification, the incisors being tipped with little caps of bony material. As calcification proceeds these caps gradually increase in thickness and extend downward over the sides of the pulps, and at the end of nine months of fetal existence the central incisors are about two-thirds calcified, that is to say, the edge of the calcified caps almost reaches the bony floor on which the pulp rests. In the meantime the bony gutter has undergone a marked transformation. Its edges have grown up around the

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