Discussion.

Dr. CLOUSTON thought that every attempt, such as Dr. Robertson had made, to find out normal structure would enable them better to understand the meaning of the pathological conditions of the neuroglia. It was generally understood that Dr. Bevan Lewis had made a mistake in looking upon the enlarged neuroglia cells as scavenger cells, and if their normal structure had been better understood he would probably not have fallen into that error. It seemed possible that these cells were for more than merely binding, like guy-ropes, the whole of the other tissues, though such binding cells must be necessary. They now saw how hypertrophy of the neuroglia cells seemed to cause a disturbance of the other structures of the nervous system. He could only say with regard to Weigert's theory that, so far as his examination of the specimens went, he was satisfied that Dr. Ford Robertson's view was correct.

The Significance of Palatal Deformities in Idiots. By WALTER CHANNING, M.D.,* Brookline, Mass., U.S.A.

The present is the day when we are searching for any deviation from the normal type, that we may put it down as a sign of degeneracy, a word that is having a more and more extended meaning, and is already serving an evil purpose as signifying more than is actually warranted. Formerly a degenerate was an individual so different physically and mentally from the average, that he could be set off into a class by himself. We knew him when we saw him, because he *was* distinct from the average. Now it needs only some slight imperfection of development in an organ, or tissue, or some slight irregularity of action in the brain as shown in speech, or action, to brand an individual as presenting indications of degeneration.

Science, usually slow to reach conclusions, has been too quick, it seems to me, in accepting fragmentary bits of evidence as proving the whole case. Because departures from the normal are found physically, mentally, and morally in the defective classes, therefore scientific investigators have assumed that any one of these departures, occurring in the average individual, gives rise to the suspicion that the process of deterioration is already under way in him.

While I believe in most carefully noting and investigating anything of a pathological nature, I think we should resist the tendency to attribute so many things to degeneration, until the case is proven. Where is our standard of the absolutely normal? Are we as yet justified in saying anything more than that man is leading an ever changing life

* Portion of a paper read July 24, 1896, at the Annual Meeting of the Medico-Psychological Association of Great Britain.

from age to age, to which he struggles, under the domination of certain laws, to adjust himself? Why should he have five fingers or toes, thirty-two teeth, a flat palate, or keen scent, if these things are no longer of service to him? What he needs is what will be of the most use to him in asserting himself in society. Though physically perfect, he might be, as the highest type of spiritual man, weak and incompetent.

It is in this broader sense that I believe we should conduct our researches, and consider degeneracy as a *sum total* of conditions, and not the outcome, or synonym of *one single aberration*. I agree with what Dr. Nicolson has recently said on the work done by so-called criminalists. "It has been the fashion for some years," he writes, ". . . to deal with the practical psychology and the crimes and conduct of criminals and the criminal classes under such imposing designations as criminology, criminal anthropology, and the like. Well, I have no more objection to the use of these terms than I would have to the use of the terms doctorology, parsonology, shoemaker anthropology as applied to the study of other groups of men who follow special occupations in life.

"Writers give us a copious and precise history of the anatomical configuration, the physiological eccentricities, the complexion, the shape of the ear and nose, the tattoo marks, etc., in certain criminals. We get a striking and elaborated account of their numerous fearful crimes, of their atrocious mental peculiarities, and hideous moral obliquities. . . . The whole picture is by some writers exaggerated to distortion as regards even the few, and it is in its main features so spurious and unfair as regards the many that it becomes impossible to regard the conclusions or assumptions to be either authentic or authoritative."*

The hard palate, being comparatively convenient of access, and therefore easily studied, has of recent years come prominently into the foreground as the seat of some of the most pronounced changes due to degeneration. Indeed a recent writer says: "I may not be able to say what Dr. Amadéegoux said of the ear, 'Show me your ear, and I will tell you who you are, whence you came, and where you go;' but I will say, 'Show me your palate, and I will probably be able to tell whether you belong to the great class tainted

* Presidential Address by David Nicolson, M.D., *Journal of Mental Science* Oct., 1895

by heredity, comprising many insane, imbecile, feeble-minded, criminal, eccentric, epileptic, hysterical, or neurasthenic individuals."* I fear we are all of us *tainted* by heredity, and very few or none of us can say that there may not have been some one of the many varieties of cerebral or nervous weakness enumerated, either directly or remotely, in our families. Are we all then the possessors of deformed palates? Are we to believe that we belong to the degenerate class, if we possess these palates, or per contra, that if we do not possess them, we do not belong to this class?

Now I wish to take issue with those who place such importance on a peculiar shape of the palate as one of the most characteristic and significant of the stigmata of degeneracy, for I believe there is not as yet evidence to warrant such a conclusion.

There have been altogether many writers on the subject of the hard palate, but in a number of cases their work has been incomplete, and proved either too little or too much. Dr. Down, nearly thirty years ago, was perhaps the first to call attention to the narrow palate in idiots, and being struck by its peculiar wedge-shape, adopted a partial nomenclature, one variety of which was the "V-shape." He stated that this kind of palate was characteristic of a very large class of idiots, in fact that there was in the congenital idiot a particular kind of deformed palate. His observations were founded on an inspection of only two hundred cases, yet to this day the idea advanced by him still prevails to some extent. The first person to be struck by the too sweeping character of his assertions was an American dentist, Dr. Norman W. Kingsley, who examined the palates of two hundred of the idiots on Randall's Island, and could find none of the kind described by Dr. Down. Later he went to the Earlswood Institution in England, and in company with Dr. Down examined the palates of the inmates. He found only from five to ten per cent. deformed to any extent, and he stated that palates of idiots were not different from those of ordinary individuals coming to him for treatment. Here we have the statements of two observers, each one perhaps extreme in its way, yet Dr. Kingsley was a trained dentist of acknowledged skill and accuracy, and certainly his conclusions were entitled to as much weight as those of Dr. Down. Unfortunately, however, they have been lost sight of, and until recently the

* *Deformities of the Hard Palate in Degenerates.* By F. Peterson, M.D.

dictum of Dr. Down has been accepted unhesitatingly, and *in toto*.

Leaving out of consideration a long list of writers following Dr. Down, I wish to next briefly allude to the work done by Dr. Clouston and described in his work on the *Neuroses of Development* and published in 1891. He regards a change in the normal shape of the hard palate as a very interesting, and, in his opinion, "very important morphological accompaniment of many of the developmental neuroses. . . . The importance of this change consists, not in any direct effects of the palate, bad or good, but in the indication as to brain constitution which it affords."* Dr. Clouston thought his assumptions amply borne out by some investigations he made on 604 of the general population, 286 criminals, 761 persons with acquired insanity, 44 epileptics, 171 persons with adolescent insanity, and 169 idiots and imbeciles. His general population statistics were based on 363 casts from a local dentist, all of his asylum officials, and the boys in a private school, certainly a heterogeneous mixture. The 286 criminals he examined and classified in two days.

He was enabled to proceed in this rapid manner because he "thought it impossible to express the differences and agreements in size and shape of a series of irregular ovoid cavities, like the hollow of the palate in different cases, by lines across, or round special parts of them. . . . After very careful consideration he considered that the simplest and the best way was to adopt a classification that most of them (the palates) seemed to him to fall into naturally." He divided them into three groups of the "Typical," the "Neurotic," and the "Deformed."†

He says "that like all things in nature, the three classes ran imperceptibly into each other with no abrupt line of demarkation, so that there were a number of cases where one had to use one's best judgment in determining the class they were to be put into, and two persons might in regard to those cases have classified them differently."‡ Here he states a dangerous source of error, for not only was his method of classification arbitrary, and therefore especially influenced by the personal equation, but further his chance of observation being largely limited to an inspection of the month with the eye in cases often difficult to control, a partially wrong impression might have been obtained.

* *The Neuroses of Development.* By T. S. Clouston, M.D., p. 42.
† *Op. cit.*, p. 45.
‡ *Op. cit.*, p. 46.

Talbot says "that the terms adopted by Clouston hardly define the condition of the vaults. Thus a normal jaw may contain a vault ranging all the way from ·21 of an inch, the lowest he has ever seen, to ·88 of an inch, the highest he has ever seen, and all in a perfectly normal condition. If . . . a normal arch is like the horse-shoe arch of Ivy's, what shall we call a normal arch that is ·25 of an inch higher or lower? The neurotic arch, Clouston says, "is more of a Gothic arch, with the alveoli tending to run more parallel and narrow down, the roof of which is formed by a larger part of a smaller circle." Talbot has observed neurotic arches very high and narrow, high and broad, low and both narrow and broad, with marked neurotic jaws, face, and head. The third class, which Clouston terms "Deformed," comprise the V and saddle jaws.*

Dr. Peterson, of New York, has recently suggested a classification of pathological palates composed of seven varieties as follows: A. Palate with Gothic arch; B. Palate with horse-shoe arch; C. The dome-shaped palate; D. The flat-roofed palate; E. The high-roofed palate; F. The asymmetrical palate; G. The torus palatinus.† While such a classification is suggestive and interesting, it is impossible to convey by the use of these terms anything more than a very imperfect idea of the almost indefinite varieties of form that palates assume. The *torus palatinus* in my series of casts is present in a very small number of cases. The various shapes of the vault of the palate are often secondary, and even if falling within one of the above varieties of classification, have a pathological value largely relative to the age of the subject, his size, his build, &c. The palate with the horseshoe arch, which is entirely different from that figured in Dr. Peterson's article, is usually regarded as the type of the normal palate.

At this point I wish to say that, in my opinion, observations made by simple eye inspection are not sufficiently accurate to serve as a basis of reliable statistics. Even with a cast to examine at leisure it is no easy matter for different persons to come to an agreement in a doubtful case, as I have found out by experience, and in a hurried glance into a mouth in such a case, I should not regard it as possible to come to any conclusion. Therefore, when I know that

* *Etiology of Osseous Deformities of the Head, Face, Jaws, and Teeth.* By Eugene S. Talbot, M.D., D.D.S., p. 332.

† *Deformities of the Hard Palate in Degenerates.* By F. Peterson, M.D.

neither measurements nor casts have been used in a series of observations I feel obliged to question their accuracy *because of the method* which has been pursued.

Measurements, in Dr Talbot's opinion, are a necessity, if we are to understand in precise figures what is meant by a wide or narrow arch, a long or short arch, and a high or low vault. A standard of the dimensions of the normal palate having been once fixed by the measurement of a very large number of normal individuals, he thinks we have a centrol to serve as a means of comparison. It is, however, no easy matter to take the necessary measurements on the living subject, especially if he be insane or feeble-minded, and in many cases I should question their accuracy, when made with instruments that I have so far seen.

Measurements do not, however, adequately give the shape or contour of the palate, but only its size. In different varieties of palates we get similar diameters. To determine accurately how the palate is shaped it is best to take casts. Once having made these we can pursue our studies with all the deliberation necessary, and if we are right or wrong we can prove it definitely not only to ourselves, but what is quite as important, to others. If we make mistakes they will be obvious and can be corrected, for the basis of observations is always in evidence. Such is not the case with a simple eye investigation, as has been proved many times over. Infinite harm can however be done by opinions authoritatively announced on insufficient data. The correction of such opinions, when wrong, never attains the publicity of the original announcement.

In adopting a classification of palates, I have to some extent followed that used by Dr. Eugene S. Talbot, who has done, as far as I know, much more work on the palate than any other person living. He is a man of untiring energy and great ability, and while I should not always agree with his conclusions, I must at the same time acknowledge that his opinions are entitled to great weight. He makes use of few of the conventional expressions, avoiding such terms as the "Gothic" arch, the "keel" and "prow-shaped" arch, the "dome-shaped" palate, &c. Some writers in their descriptions of the palate confuse the arch and the vault, using them synonymously, but this is a wrong use of terms which should be carefully guarded against.

The vault means the whole roof of the mouth. The span of the top of the palate. The dome of the mouth, as the

sky is the dome of the earth. The arch of the vault might be correctly used as an expression, but I think it desirable not to make use of it. The true arch of the upper jaw is that formed by the teeth, as they are embedded in the alveolar process of the superior maxillary bones.

"It may be well to state at the outset," Talbot says, "that the only structures involved in the formation of these deformities (V and saddle-shaped arches) are the jaws and the alveolar process on the one hand, and the teeth on the other. The alveolar process is soft and yielding, while the teeth and jaws are comprised of hard, unyielding substance. The process adapts itself to the conformation of the teeth." *

The data of such studies as I have made are taken from the casts of the palates of one thousand idiots, all inmates of American Institutions for the Feeble-minded. I have also the casts of the palates of five hundred school children in American schools to compare with them. The casts were made several years ago, giving ample time to examine them at leisure.

The best classification is the one that covers the most cases, is the most definite, and the most easily understood. Talbot has given what he regards as such a classification, which is the following :—

1. V-shaped.
2. Partial V-shaped.
3. Semi-V-shaped.
4. Saddle-shaped.
5. Partial saddle-shaped.
6. Semi-saddle-shaped.

In my own classification I have not included Talbot's two latter varieties, for the reason that there were very few of them, and when they existed were usually in combination with a more marked variety of deformity.

While Talbot has spoken of his classification as one of "pathological palates," the one I present of idiots I should call "a classification of the palates of pathological individuals." This is as follows :—

1. V-shaped.
2. Partial V-shaped.
3. Semi-V-shaped.
4. Saddle-shaped.
5. Average, or U-shaped.

* *Op. cit.*, p. 401.

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In a general classification some expression for what may be regarded as a fairly normal palate is necessary. Such researches as I have been able to make on skulls and casts, and the study of others' writings, have led me to the conclusion that the normal palate of the present day approximates to a broad, short *U* rather than to the more typical horse-shoe shape. I have therefore adopted the term "U-shaped."

The percentages I have found are as follows :—

TABLE I.

Classification of Palates of 1,000 Idiots.

V-shaped... ...	19	48·1
Partial V-shaped ...	24·8	
Semi-V-shaped	4·3	
Saddle-shaped	11	
Average, or U-shaped ...	40·9	

From this table it will be seen that about forty-one per cent. of idiots in American Institutions have palates which are of fairly good shape, and cannot be regarded as falling into any classification of pathological palates, if *shape* is to be the criterion.

The difficulty of making correct inferences from statistics can be graphically shown by the next two tables I present, which are arranged after the method of Talbot.

TABLE II.

Showing Varieties of Palates in Presumably Normal Individuals. Collection of Drs. Sheppard and Cooke of Casts taken before Correction of Irregularities of the Teeth.

No.	Normal.	Large jaw.	High vault.	V-shaped arch.	Partial V-shaped arch.	Saddle-shaped arch.	Small teeth.
212	22·1	5	5	16·5	42	19·3	0

TABLE III.

Showing Varieties of Palates in Presumably Normal School Children over 12 years of age. Not from casts. (Dr. Talbot.)

No.	Normal.	Large jaw.	High vault.	V-shaped arch.	Partial V-shaped arch.	Saddle-shaped arch.	Small teeth.
1,000	78	1·9	5·6	1·1	6·1	3·3	3

In Table II. it will be seen there was an enormous percentage of deformities far in excess of that in Table III., and nearly 30 per cent. in excess of that figured in Table I. of idiots' palates. Table II. shows 42 per cent. of partial V-

shaped arches, which Table III. gives as only 6·1 per cent., and Table I. 24·8 per cent.

From these statistics it would appear that one class of the general community not only has many more deformities than another, but actually more than obtained among idiots! The discrepancy in the first two sets of figures can somewhat be explained by the different methods of observation pursued. The statistics in Table II. were made from casts by myself at leisure, and with care. Those in Table III. were not made from casts, and therefore, though no doubt carefully compiled, were more liable to error. One might further explain the discrepancy by saying that the individuals serving as the basis of the figures in Table II. were exceptional cases, going to the dentists for the correction of known deformities, whereas, on the other hand, the school children represented average individuals in the community. If the former are assumed to be average, or normal individuals mentally and physically, on the whole, as I have every reason to suppose, why should not V-shaped and saddle-shaped arches be regarded as not infrequent at least in the general community? Talbot has recently modified his opinions as presented in the above table, and finds a much larger percentage of deformed palates than there appears.

Such being the evidence in regard to what has been assumed to be the *abnormal* palate in the average member of the community, a few words further may be in order on the subject of the so-called "normal" palate in abnormal individuals. At present, as I have already suggested, I hold that we have no correct standard of the normal palate. We can say, if we please, that a certain kind of palate is *typical,* and so perhaps it may be, if our type is to be of an anatomical character, consistent with the perfect anatomical development of the savage of many centuries ago, for the palates of recent races, as far as I have examined them, are not perfect in this regard, but in my opinion we can do no more in the case of the civilised man of to-day, than to assume that in certain races, under certain conditions, palates of varying shapes are found, and accepting a wide range of shapes of palates as coming within normal limits, we can say: That those with the fewest defects within these limits will give us a fairly reliable average.

As bearing upon this subject, of what we are to infer from the shape of the palate, I will present the plan of

classification of Dr. Clouston, already alluded to in an earlier portion of this paper.

TABLE IV.

Frequency in Different Types of Palates in Idiots and Imbeciles (Clouston).

No.	Typical.	Neurotic.	Deformed.
169	11	28	61

To serve as a basis of comparison I will present a somewhat similar table of my own.

TABLE V.

Frequency of Different Types of Palates in Idiots.

No.	Average, or U-shaped.	Slightly deformed.	Much deformed.
1,000	40·9	40·1	19

As I have already said, I do not believe we are justified in using Clouston's expression of "typical;" and further, in my opinion, it has no clear, or well-defined, or logical connection with his "neurotic" or second class, which in turn appears to have no connection with either of the other classes. It is a mistake in dividing palates into three classes to make two on an anatomical basis which should be a demonstrable fact, and a third on a basis which is hardly physiological even. Furthermore, palates either fall within the limits of deformity or outside of them, as I believe has been suggested by Talbot, and all of Clouston's "neurotic" palates must have been either one thing or the other.

The results presented in the table compiled by myself are quite different from those of Clouston, showing a much larger percentage of average palates, fewer of his "neurotic" class, which I call the *slightly deformed*, and a very much smaller number of the third, or *much deformed* class. While acknowledging that my own figures, like those of Clouston, are an expression of my personal judgment, they were made wholly from casts, and I believe were carefully, impartially, and accurately compiled.

Assuming that the statistics presented above are correct, I arrive at the conclusion that not only do we find many slightly deformed palates in idiots, but also an important percentage of average or fairly good palates. Precisely as in a normal individual a deformed palate may not by itself be a sign of degeneracy, used in what must be regarded as its

proper sense, so in the feeble-minded, or idiotic individual, a palate up to the average is no indication that he is not degenerate. It is one of those rules working both ways.

Further it may be said in contravention of the position of Down that V-shaped palates are characteristic of idiocy, and even pathognomonic of the congenital form, that such a theory is disproven by the facts, which lead to the opposite conclusion, namely, that no particular kind of deformed palate is characteristic of idiocy.

The point already referred to above, but not adequately brought out in studying deformities of the palate in idiots, is the fact that in a not unimportant percentage of cases the infantile character persists after puberty. In my series of one thousand casts the infantile type was noted in approximately seven per cent. of individuals over twelve years of age, some of them being between twenty and thirty years of age. The teeth in these cases are generally small, occasionally some of the first set being retained, and are sometimes regular and sound. The palate is of normal shape, as far as its relations to itself are concerned, but in relation to the age and size of the individual it is deformed and aberrant, and quite as striking as a deformity, or an instance of arrested or delayed development, as a V or saddle-shaped palate. Notwithstanding, it receives no proper place in classifications, and would naturally be liable to be counted among those classified as normal. Perhaps few of us who are not dentists can be expected to judge of the development of the palate in relation to age, but I regard it as of considerable importance, and not to be forgotten in describing palatal deformities.

Talbot has repeatedly asserted, and I believe that it is generally true, that the palatal deformities do not to a great extent appear until the second teeth begin to come in, or not much before the eighth year.

In the series of casts already referred to of five hundred school children, all presumably strong, normal children, I find a variety of palatal shapes. The ages of the children range from six to fourteen. The prevailing shape is a rounding arch approximating to the horse shoe, with a rather flat and broad vault. The younger the subject, as a rule, the more noticeably flat is the roof, and the more regular the circular contour of the arch. The symmetry of the arch is often interfered with as soon as the second teeth begin to come in. We can pick out in the casts of these

children almost any of the *kinds* referred to in classification, though the *degree* of the deformity is less, for the palate retains its infantile character to some extent until the child is well in his teens. There are plenty of palates narrowing in front. There are others which are rounding anteriorly like a broad U, some of which will probably become V's, and others saddle-shaped, according as the cuspids or bicuspids come in last. It is easy to imagine that these U-shaped arches will not be long enough in their long diameter for the long diameter of the teeth, and only a little crowding of the central incisors will be necessary to turn the U into a V.

Then there are casts where the arch is circular on one side and slightly straighter on the other, where there is a very little pinching in at the bicuspids, and in some cases a widening out in front of the first molars. The lateral arch may be about normal on each side in relation to itself, yet larger or smaller than the other side. The palatal suture may be noticeably developed, the rugæ prominent. Some of the palates are twisted, one whole side being a little out of relation to the other.

These points and others can be observed on a careful study of the palates of these school children, which at a first glance we should be apt to pass as normal. We can see in some of them defects and irregularities which must later, in a developed state, appear as the various deformities which now figure as stigmata of degeneracy.

A specially interesting use to which these casts may be put is as a means of comparison or centrol for the study of the palates of idiot children of a similar age. It happened when I was rearranging my idiot casts that a considerable number of school children's palates were mixed up with them, and I found to my surprise that I could not always discriminate the palate of the idiot child between six and twelve, from that of the school child. There were the infantile characteristics already referred to in each kind, just as there were many departures from the strictly symmetrical circular outline of the arch. The teeth in the casts of the idiots were not always as good or as much developed, except in very exceptional cases where there were exceptionally large palates with too many teeth. A further fact I noticed in the palate of the idiot young children, that those *over* twelve, even up to eighteen years of age, often preserved the infantile characteristic of the palate already alluded to, so that quite a number could be placed with those of young

children below twelve years of age, and not appear out of place.

These observations of the palates of young children lead to the conclusion that, at least up to eight years of age, there are in a large proportion of cases no essential differences to be observed between the presumably normal and idiotic. So-called characteristics of shape and size which would serve to differentiate the former class from the latter are not sufficiently and definitely marked enough to be reliable for such a purpose.

The limits of this paper will not permit me to enter into a discussion of the question of why and how the development of the palate is arrested or retarded, or of the mechanical, or what I should call "dental explanation" of palatal deformities. These topics I must leave for future papers.

As far as the idiotic or feeble-minded are concerned, I believe the deformed palate to be only one of an indefinite number of indications of imperfect anatomical development occurring to a marked or very slight degree as hereditary and environmental causes may determine. It is not that the individual is idiotic or feeble-minded that he has the imperfect palate, but because circumstances have kept him in a lower plane of evolution than his normal brother, and he never grows to manhood, or the completed fulness of life.

Conclusions.

The most important of these are as follows:—

1. Two-fifths of the palates of idiots are of fairly good shape.
2. Palates of normal individuals may be deformed.
3. In the idiot it is a difference in degree, and not in kind.
4. In either case it shows irregular development anatomically.
5. Palates of average children and idiots under eight years of age probably do not in the majority of cases markedly differ.
6. There is no form of palate peculiar to idiocy.
7. The statement that a V-shaped or other variety of palate is a "stigma of degeneracy" remains to be proved.

Discussion.

The PRESIDENT confessed that he was not prepared to discard the condition of the palate as a valid sign of degeneracy. He might indeed accept all that had been said by way of mechanical explanation, but the very mechanical condition and those very irregularites were due, in some cases at least, to degeneracy. He was not prepared to defend the classifications of palates that had been made; he did not accept all that had been said on the subject; but

he had carefully examined a great many palates and a great many people, and had come to greatly modify what he had learned from books. He had found that great caution was necessary on the subject. It had fallen to his lot to find a difference in the palate of *sets* of individuals coming (as lunatics) from different parts of England; and the average was distinctly different in regard to districts. They must therefore take into consideration not only the race, but the parts of the country from which the patients came. It seemed to him, however, that the matter could never be settled unless they had certain kinds of observations made,—observations upon large numbers of persons known to be mentally defective compared with an equal number of normal individuals taken from the same race, from the same localities, following the same occupations and at the same ages. He had seen numbers of idiots in whose palates he could trace nothing abnormal; but he found a certain relation between the condition of the palates in idiots and imbeciles (those presenting marked signs of degeneracy) and the shape of the cranium, especially the relation of the antero-posterior to the transverse diameter—a very important point to be taken into consideration.

Dr. FLETCHER BEACH said he had examined 700 children at Darenth. His conclusions had been very different from those of Dr. Clouston, in fact, they were almost the same as those of Dr. Channing, the so-called neurotic cases being rather 61 per cent. than 28, and the deformed cases rather 28 than 61. He accounted for this by the fact that a large number came from the lowest parts and a large number from the best parts of London; and, on the whole, rather a larger number of imbeciles than idiots. He suspected that normal individuals had quite as bad palates as abnormal. It had been his practice in hospital to examine the palates of nervous children, and he had there also found the neurotic palate in excess rather than the deformed. The investigations of Dr. Warner showed that there were a certain number of neurotic and a certain number of deformed palates, but not so large a number as might have been expected. There were more defective palates in the males than the females. Of the remote causes to which Dr. Channing had referred that of evolution must certainly be taken into consideration. Long years ago savages existed on roots and very often tore their meat to pieces. They would therefore require considerably more power and stronger muscles to move the jaws than most people did at present. Especially in highly evolved classes of society, where food was reduced to its most digestible state, very little mastication was required. The question of heredity must be considered rather differently, because it led to so many different ultimate results. Not merely did one find neurotic or deformed palates, but lobes of ears might be wanting, there might be under-hung jaws, large palpebral fissures, and so on, many of which were stigmata. He doubted whether they could take the palate alone as a sign of any significance unless they associated that sign with other stigmata. The changes in the palate after puberty he considered one of the most important points. He had been accustomed to conclude that if an idiot had a deformed palate the case was a congenital one; but if, as Dr. Channing said, palates changed after puberty, that opinion would have to be modified. In a case brought before the court where the individual was said to be unable to manage his own affairs, Dr. Down had declared him an idiot simply from the circumstance that he had a deformed palate.

Mr. BRISCOE disagreed with a theory of Dr. Clouston's, who said that anatomists could give him no information, and said that Mr. Tomes attached very little importance to the V-shaped or U-shaped palate. Dr. Briscoe thought that the canine tooth, as the key-stone of the arch, was very important. A dentist who had about a thousand specimens had not one deformed palate, although he had seen many deformed jaws.

Dr. WHITE thought that the investigation had been too narrow. It was not merely a question of the palate, but of the palate in conjunction with all the factors of cranial development. By confining themselves to one abnormality

they would miss the real matter which would guide them. The narrow palate seemed to him the result of abnormality or arrested development. If, as the investigation seemed to show, the great majority of children had U-shaped palates, were there many with V-shaped palates in the early years of life; and, if so, in conjunctlon with what deformities, and what was its significance? A consideration of that point might present the matter in a somewhat different light from Dr. Beach's statement of the matter.

Dr. CHANNING, in reply, said he had not examined very many young idiots. Only those in institutions had come within the scope of his investigation; but he found the proportion of U-shaped palates very large among young idiots. It was rather the exception, he thought, to find deformities until they had passed six or eight years of age. That the great majority of cases approximated to the U-shape was a moderately safe conclusion. He agreed that there must be some significance in the development of any organ or in the modification of size or shape of any portion of the body—he should say that with regard to the palate—but he wished to show that there was a good deal of exaggeration on the subject, and that they had gone too far in their conclusions, just as Lombroso had done in classifying insane criminals from a few observations. He did not think he had said that there were as many abnormal palates in normal individuals as in idiots. That would be going further than his warrant. In reply to Dr. Beach, Dr. Channing said that he would not diagnose a case as congenital because the idiot in question had a deformed palate.

On Post-Operative Insanity, with Notes of a Case occurring three weeks after Laparotomy. By J. CHRISTIAN SIMPSON, M.D., Tunbridge Wells.

The following case may serve the purpose of illustrating a few remarks on the subject of Post-Operative Insanity, which, perhaps, has not received as much attention in this country as might have been expected.

Mrs. L., aged 53, had always enjoyed good health until November, 1893, in which month she began to be troubled with gastric symptoms. These were unsuccessfully treated until the July following, when she asked me to attend her. The family history was unimportant. She was emaciated, and stated that she had been vomiting almost all her food for several months. Tongue coated; bowels constipated. It was evident that the stomach was greatly dilated, and there was pain on firm pressure in the epigastric and right hypochondriac regions. She was first put on a diet of dry food and a small allowance of malted milk; a mixture containing subnitrate of bismuth and hyposulphite of soda was administered. As the vomiting still continued rectal alimentation only was employed for several days. When food was again given by the mouth all the symptoms returned, so gastric lavage was now carried out daily, and, later, every second day. Hæmatemesis occurred, and on 21st August, 1894, she was seen by Mr. Skene Keith in consultation with me. As the emaciation was not extreme we decided to continue rectal enemata and gastric lavage