I desire to acknowledge my indebtedness to Dr. Irwin Moore for the use of the original drawings from which the figures illustrating this paper have been reproduced.

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LARGE PHARYNGEAL DIVERTICULA.

BY

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THE following details relate to two patients with large pharyngeal pouches of long standing which had not been operated upon. The first had been present for over forty years.

CASE I.

The patient was a man, aged 76, who sought admission to Ruthin Castle early in 1924, for an affection of one hip-joint, stating that he was otherwise in good health. When giving his history he said that a pressure pouch of the oesophagus had been diagnosed by Sir (then Mr.) Henry Butlin, thirty-eight years before. He had managed the pouch for the whole of this time, the only serious disadvantage being that occasionally at a meal it might discharge involuntarily through the nose. This accident was rare and often did not occur for several months, but the fear of it is present when he is obliged to dine in public rooms in hotels or on a ship. He had lived a very active life, travelling, riding to hounds, and walking long distances, even recently as much as twenty-five miles a day.

With a barium meal a large pouch of clear outline can be seen extending into the thorax as low as the fourth vertebra and below the level of the aortic arch (Fig. 1). It is a little more to the right side than the left.

The procedure which the patient has evolved for managing the pouch is as follows: he retires after each meal, bends forward and makes an effort to increase intrathoracic pressure, putting the closed hand, the back of the first phalanges, against the left side of the neck above the clavicle, and ejects part of the contents of the pouch through the mouth. He then takes a glass of water, evacuates again, and is comfortable and safe from disturbance.

Since the lower part of the pouch is not mainly on the left, it appears that the placing of the back of the hand on that side probably supports the upper part of the pouch or protects a weak place, and this aids in raising thoracic pressure without discomfort. When this procedure was carried out with a barium and buttermilk meal, the first evacuation got rid of three-quarters to four-fifths of the contents of the diverticulum (Fig. 2).

With subsequent meals the glass of water was taken as usual, but some barium returned at the end of the day. The patient believes, however, that with ordinary food there is complete emptying after each meal. In a recent letter to my colleague Dr. Anderson this patient states, for the benefit of anyone in a similar plight, the result of his forty years' experience as follows:

1. All food left in the pouch must be expelled within a few minutes after a meal and the throat gargled with cold water.
2. The saliva should be expelled also before getting into bed.
3. Alcohol must be regarded as a poison; "I allow myself one glass of Madeira to my dinner, however."
4. Beef should be avoided unless minced.
5. Devonshire cream is recommended as a good lubricant which is well borne.

CASE II.

In this patient, a man aged 70, also not operated upon, the symptoms dated back sixteen years. It was first noticed that food began to be arrested on swallowing, and that a piece of meat would return. Twelve years later—that is, four years ago—the symptoms became worse and weight was lost. At the time of the first consultation twenty months ago he could take only soft food, mainly cereal, with milk, milk pudding, butter, bacon fat, and some fruit pulp. Food tended to come back and had to be swallowed again or rejected. Fits of choking occurred, when food might return through the nose. The pouch could be emptied voluntarily. On one occasion this was done in my presence. About half a pint of brown fluid was produced, with the odour of coffee; some fat was floating on the surface. The fluid was acid to litmus, but contained no free acid.

On x-ray examination with a barium meal a large pouch was seen which, in an antero-posterior view, extended into the thorax well beneath the level of the clavicles as low as the fourth dorsal vertebra, most of it being to the right side of the middle line. It was irregular in outline. In the lateral view it can be seen to come below the level of the aortic arch. The mouth of the diverticulum appeared to arise from the posterior part of the pharynx just above the junction of the gullet. It was found on the x-ray table that food passed into the oesophagus more easily in the prone position (Figs. 3, 4, and 5).

This patient was recommended to take food lying forward on the right side. A year later he was holding his own; the weight was the same and he had little discomfort. He found it better not to empty the pouch during the day, as if it were kept full food would pass over it into the stomach. It was then emptied each evening after the last meal.

These were regarded as pressure pouches. Such diverticula have been called congenital, just as have the diverticula arising from the second part of the duodenum, and with no more evidence. They both arise in adult life at a part of the alimentary tube where there are frequent rises of pressure from the contraction of the muscular tube above and where the tube is weak from the divergence of muscular fibres. There may be a sphincteric contraction below, as described by Wilkie and Hartley.¹ When the pharyngeal pouch is once formed we may add to these factors a definite obstruction below; for the neck of the filled pouch will pull upon the gullet at its origin (Fig. 5, lateral view). During swallowing the lower part of the pharynx then becomes a closed cavity, the pressure in which will distend the diverticulum more and more.

In neither case was there any unpleasantness or putrefaction in the contents of the pouch.

Both of these men would be much better off had the pouch been successfully removed. In the first case operation was refused by the patient many years ago. His last consultation with Mr. Butlin was about 1893. At that time he was told that the mortality of the operation was about 50 per cent. It must be admitted that he has done well by his own methods. He does not suffer, casual acquaintances have no idea of the disability, and he has lived, and still lives, an active interesting life.

In the second case failure of nutrition set in definitely four years ago, but on considering the patient's age and physique, two surgeons advised independently against operation. By experiment and observation, including the finding out in the x-ray room in what position food entered the oesophagus most easily, the patient (who is a retired medical man) and his advisers have evolved simple means of diet and living which have enabled him to hold his own.

The photographs shown are by Mr. O. A. Marxer.

REFERENCE.

- ¹ D. P. D. Wilkie and J. N. J. Hartley: *Brit. Journ. Surg.*, 1922, x, 83.

DISCUSSION.

Dr. IRWIN MOORE (London) agreed with Dr. William Hill that such diverticula should not be described as oesophageal. The site at which a pressure pouch originated was in every case so definite and constant—namely, the posterior wall of the deep pharynx, between the oblique and transverse fibres of the crico-pharyngeus muscle—that there was no reason whatever why such pouches should be described as other than pharyngeal. Again, frequent endoscopic examinations had confirmed the fact that the slit-like opening of the lower pharyngeal orifice was always situated at a slightly lower level than the mouth of the pouch, which was definite proof that such pouches were pharyngeal in origin. Their lateral relationship to the oesophagus was probably the reason why they were frequently and erroneously described as oesophageal.

Dr. Irwin Moore pointed out that Dr. Hill had omitted to include in his classification acute diverticula, which were, however, very rare. Hoffmann in 1899 had recorded such a condition in a man, aged 31, who died after accidentally swallowing a piece of china. At necropsy an opening was found in the "upper region of the oesophagus" (? deep pharynx) which was lined with mucous membrane. Again, Dr. Hill had not mentioned artificial pouches, produced by habitual criminals in India for the purpose of concealing stolen money. A specimen in the museum of St. Bartholomew's Hospital, removed after death from a convict, who had made a pouch in his throat for keeping money, showed a pouch formed by the prolongation downwards of the left sinus pyriformis. Lead weights, varying in weight from 12 to 70 grains, were used to increase the depth of the sinus pyriformis. These discs were attached by a piece of string to one of the teeth to prevent them from being swallowed. Criminals with coins secreted in these artificial pouches might be inverted and shaken without the coins coming away. Dr. Irwin Moore also pointed out that under the heading of "congenital lateral pharyngeal aerocoeles of abnormal branchial cleft origin" Dr. Hill had included the case recorded as a "pharyngeal pouch" by Godlee and Bucknall, in 1901. This case appeared, however, to have been wrongly described by them, for it was undoubtedly a "laryngocele," since the sac contained air and its origin was laryngeal. The late Professor Shattock was of the opinion that, etymologically, the term "pneumatocele" would be a better term than "aerocoele" in cases where it was thought desirable to indicate the fact that the sac contained air and not fluid. In a paper published in 1922 on "The so-called prolapse of the laryngeal ventricle and eversion of the sacculus laryngis" Dr. Irwin Moore had specially investigated this case with the help of Professor Shattock, and had come to the conclusion that there were no grounds for describing the tumour as a pharyngeal pouch. Professor Shattock also stated that, at the time the case was published, Professor Arthur Keith had expressed the opinion that it was an enlarged air sac. When first seen by Rickman Godlee and Bucknall the tumour looked like an enlarged thyroid gland on the left side of the neck at the level of the hyoid bone, and in front of the sterno-mastoid muscle. It was soft and tympanic on percussion, freely movable over the deeper parts, except at the top of the larynx, to which it was fixed, and the movements of which it followed during deglutition. Pressure caused diminution in size. When seen six months later the tumour had reached the middle line of the neck, and extended to the posterior border of the sterno-mastoid muscle up to the angle of the jaw and down to the clavicle. Not only did it give a tympanic note on percussion, but, on holding the breath and blowing, the patient could slightly inflate the tumour, producing a change in the percussion note. At operation the pedicle, which was secured and ligatured outside the larynx, passed through the thyro-hyoid membrane, and careful probing failed to discover an actual communication with the pharynx. This case therefore came obviously under the group of "laryngoceles"—a term introduced by Virchow in 1867 to describe those cases of thin-walled air sacs which arise in connexion with the laryngeal ventricle (pneumatocele of the sacculus laryngis).

Dr. Irwin Moore next referred to the etiology of pharyngeal pouches. Two hypotheses had been put forward: (1) that they were congenital, but no evidence had been submitted which supported this view; (2) failure of the circular muscle fibres of the crico-pharyngeus to relax in the process of deglutition—in other words, a spasm of the lower sphincter orifice of the pharynx, followed by arrest of the bolus of food and dilatation of the hypopharynx, giving rise to increase of intrapharyngeal tension, the upper portion of the inferior constrictor acting as a force-pump, and causing the mucosa to bulge at the part where there was admittedly the least muscular support. Pressure of the pouch when filled with fluid or food helped to increase the difficulty of swallowing and to increase the size of the pouch.

There was no question that the thinness of the wall of the gullet as a whole—in this position—was very marked as compared with its thicker walls lower down. In the

speaker's opinion the latter view of the formation of these pouches was the correct one. The majority of these pouches had a narrow mouth and neck, the mouth averaging one inch in diameter. The relationship of the orifice of the pouch to the lower sphincter orifice of the pharynx was well shown in a view from above in a specimen in the museum of St. George's Hospital.

To illustrate further the position and formation of retraction pouches of the oesophagus Dr. Irwin Moore showed a drawing of a specimen in the museum of University College Hospital, to which the following description was attached:

"The pouch is in the anterior wall of the oesophagus, 3 cm. below the bifurcation of the trachea. It is of small size and its opening about 1 cm. in diameter. The interior is lined with normal mucous membrane. In the bifurcation of the trachea is a group of pigmented and calcareous glands, and to the lowest gland is adherent the apex of the conical protrusion of the muscular wall of the oesophagus which forms the pouch. From a man who died in University College Hospital of pulmonary tuberculosis."

With regard to the treatment of pharyngeal pouches, Dr. Hill had only dealt with the surgical and not with the medical treatment of these cases. Many surgeons had declared that only extirpation or other operative procedures could be recommended, and that without operation the case must inevitably go from bad to worse until starvation, sepsis in the neck, mediastinal abscess, or septic pneumonia ensued. Among a number of cases which had been through his hands there were two, which he had recorded, in which no operation had been performed, and it was interesting to note their later history.

CASE I.

The first patient, a lady aged 64, had consulted him, at the advice of Dr. Lewarne, Cricklade, in August, 1912. From her symptoms it was thought that she was suffering from malignant stricture of the oesophagus. She had been weakly since childhood, and for four years she had had difficulty in swallowing any dry food unless it was first moistened and softened. Tough or stringy meat had to be taken with gravy. All foods, and even liquids, had to be swallowed very carefully, slowly, and in small quantity, otherwise they caused irritation, coughing attacks, and regurgitation. She expectorated a considerable quantity of mucus, especially at night. Her weight was 10 st. 2 lb.

This case was first diagnosed under cocaine anaesthesia by the oesophagoscope. In passing through the cricoid pharynx the tube entered a cavity posteriorly, with its walls lying in folds, coated with stale-smelling slime. The further progress of the tube was abruptly stopped, and no outlet could be found. On withdrawing the tube the slit-like opening of the lower pharyngeal orifice was seen anteriorly and at a lower level. The tube could be passed with great ease in and out of the posterior aperture, but could not be passed into the oesophagus. The diagnosis of a pouch was confirmed later by x rays and a bismuth meal, the swallowing of which was carefully watched. It was observed that the bismuth at first passed quickly out of the mouth for a short distance, then was suddenly held up. As more bismuth was swallowed the outline of the diverticulum became gradually depicted in the neck—situated almost centrally in the middle line. The upper border appeared to be situated at the level of the cricoid cartilage, and the lower extending downwards for 1½ to 2 in. As the pouch became overfilled and stretched with the bismuth a portion of the latter was seen to well over the top of the sac into the oesophagus, where it was momentarily delayed before descending slowly, but without further arrest, into the stomach. This phenomenon occurred with every fresh mouthful of bismuth swallowed, and suggested that the walls of the pouch were contractile, but further investigation proved that the patient emptied the pouch by contracting the muscles of the neck.

This patient was advised to live on soft food, to eat very slowly, and have the pouch washed out occasionally. In 1913 Dr. Lewarne reported that he could not persuade her to have the washing done, and that her present condition was no worse, and he had heard no further complaints. The patient herself reported, in 1915, that her throat was "certainly much better," and she swallowed with greater ease and comfort, though there was still some expectoration at night. In 1917 she wrote that her throat was much better, she could feed very well, though occasionally, with anything irritating, she had a "little choke." Her weight and general health kept up to the normal. Dr. Lewarne also wrote: "She has been wonderfully well without any treatment." On July 9th this year Dr. Lewarne wrote: "She is now 78 years of age, and going strong, and is quite active and able to get about. She still makes extraordinary noises during and after meals, but being very deaf these do not worry her."

CASE II.

The second patient, a lady aged 78, was first seen in June, 1916, recommended by Dr. Soltan Fenwick. She complained that while lunching in May, 1915, she suddenly had a choking feeling and swelling in the throat, followed by regurgitation of a small quantity of food. This occurred on two or three occasions during the year. Food had occasionally stuck "against a ledge" at the level of the sternal notch, and then had been regurgitated. There had been no trouble with liquid foods. She had suffered from

indigestion and constipation for years. This case was not examined endoscopically at the advice and wish of her physician, but was diagnosed by x rays.

Treatment for this patient's indigestion was prescribed and she was recommended to live on soft foods, also to swallow her food slowly and in small quantities.

In October, 1916, the patient wrote that her swallowing was no worse, though the "catching of food" was just the same. She was taking ordinary food, but had to eat and swallow very carefully or food might stick. There was no regurgitation of food. She had noises during swallowing, but mostly when lying down. She not only looked but felt very well. Dr. Soltan Fenwick wrote on July 2nd of this year that he had not seen her since 1916, but that he had heard that the symptoms had not increased. This patient is now 88 years of age.

These two cases showed that attention to feeding and digestion might be all that was required in some cases to improve the distressing symptoms caused by pharyngeal pouches and to prolong life, and that operative procedures might not be necessary in a number of cases.

Dr. Irwin Moore expressed the opinion—judging from the appearance of the x rays—that the case of a large pharyngeal pouch exhibited by Mr. Bell Tawse at the previous day's clinical meeting might be similar to an unusual specimen of a pharynx which he had come across in the museum of University College Hospital, and had been removed *post mortem* from a patient, aged 76, who had been under the care of Sir Rickman Godlee, and who died from bronchitis and pneumonia. To the lower extremity of this pharynx a pouch was attached measuring vertically 2 inches and from side to side 2½ inches. The speaker was struck with the unusual appearance of the pouch in this specimen, which had not been well dissected, and obtained permission from Mr. Lawrence to investigate the specimen with Professor Shattock, who carefully dissected the sac and bisected the specimen.* In this specimen the pouch, which was particularly capacious, was unusual in that it rose as high as the upper level of the cricoid plate, and had a mouth of exceptional size. Like the summit of the pouch, the upper edge of its mouth lay at the same level; the sac involved much of the lateral as well as the posterior walls of the pharynx.

Dr. Irwin Moore considered that in Mr. Tawse's case a careful endoscopic examination with a medium-sized oesophageal tube which could be orientated would decide the actual size of the pouch opening and settle the question of operation. Again, a full lateral x-ray photograph would also help to decide the size of the pouch mouth, for in this position a much more accurate picture was obtained than in the anterior, antero-lateral, or posterior position.

The danger of an oesophagoscopy examination, or of dilating an oesophageal stricture co-existing with a pharyngeal pouch, should not be overlooked in these cases, for the oesophagoscopy tube invariably entered the pouch, and considerable difficulty might be experienced in finding the slit-like oesophageal lumen. If the mucous wall of the pouch was very thin, as might be the case, it was extremely easy to perforate the sac with the tube. This risk was well shown in the case of a male patient, aged 71, who died from mediastinitis forty-eight hours after the endoscopic passage of a bougie for a supposed co-existing oesophageal stricture; the bougie perforated the sac wall. When this patient was first examined by x rays with a bismuth feed, the bismuth was seen, in the first instance, to enter the oesophagus with difficulty—that is, a spasm occurred at the sphincter opening—and very little food passed down the oesophagus. After a few seconds the rounded shadow of the pouch could be clearly seen. When this had fully filled up, the passage of the bismuth down the oesophagus appeared to be facilitated, and the spasmodic movements observed at the commencement of the examination ceased. The bismuth remained in the pouch during the whole of the examination—from the commencement to the time the plates were taken—occupying about half an hour. The x-ray pictures were taken in two positions—namely, antero-posterior and left antero-lateral oblique. In the latter position there appeared to be a constriction at the entrance to the pouch. There was a distinct gap in the bismuth shadow below the pouch, then a fairly wide shadow continuing down for about an inch. A slight constriction at

this point gave the impression that there might be a narrowing of the lumen, hence the suggestion of a possible stricture of the oesophagus below the pouch. At necropsy the wall of the pouch was found to be so thin that it seemed surprising that spontaneous rupture had not previously taken place. The diameter of the oesophagus was found to be so reduced that it would only admit the little finger; it measured 14 mm. (nine-sixteenths of an inch). Dr. Irwin Moore considered this case of great interest in supporting the view that the predisposing cause and starting of a pharyngeal pouch was a spasmodic contracture of the crico-pharyngeus muscle.

Mr. LIONEL COLLEDGE (London) said he bore a message from Sir StClair Thomson, who regretted that he was prevented from attending the meeting by an attack of gout. Sir StClair had received a courteous rebuke from Dr. William Hill for including "pouches" under "diseases of the oesophagus" in the new edition of his textbook. Sir StClair was well aware of the pathological anatomy of the condition, but declined to be bound by any particular method of classification. The symptoms were oesophageal, and in a book which was essentially clinical in its outlook he preferred, after careful consideration, to rely on a clinical rather than on a pathological classification, which might even savour of pedantry in such circumstances.

Mr. KELSON (London) described the treatment of two cases by excision without subsequent leakage. One patient lived for four years and died of bronchitis; the other lived for a longer period and died of malignant disease.

Mr. E. D. D. DAVIS (London) said that the pathology of the propulsion pouch was similar to that of hernia, and was related to the weakness of the pharyngeal wall between the fibres of the inferior constrictor. Mr. Waggett considered that the increased pressure was due to swallowing and inco-ordination of swallowing with a spasm of the crico-pharyngeus muscle; most of these patients gave a history of dysphagia of long duration. The treatment was that of the radical cure for hernia. In any type of operation the weakness of the pharyngeal wall must be strengthened. In excision recurrence had followed in several cases, and after excision the wound in the pharynx should be carefully sealed and the sterno-mastoid pulled over and stitched over the opening. Diverticulopexy had failed in some cases, and in one case the pouch sloughed and a fistula resulted. Girard's or Bevan's method of inversion had also failed and recurrence ensued.

The PRESIDENT (Dr. Brown Kelly, Glasgow) referred to the symptoms of saliva in the throat and a gurgling noise on swallowing being useful in diagnosis. It was important to remember that operation was undertaken on account of serious symptoms such as dysphagia and loss of weight, rather than for the purpose of removing the pouch *per se*. Some patients possessing pouches consumed all manner of food and reported no loss in weight. He had been rather surprised that Dr. Hill did not pay more attention to endoscopic diagnosis than to x rays.

Dr. HILL, in reply to a question by the President, whether primary excision was to be considered as the operation of choice, said that in his historical review of operative methods down to 1892 he had stated that primary excision had remained in the main the method of choice ever since. He had in view the point that it was the choice of the majority of operators. Personally he preferred fixation suspension in suitable cases. Comment had also been made on the fact that no stress had been laid on endoscopy as a diagnostic method. Dr. Hill's view was that the diagnosis could be confirmed by endoscopy, but it might be dispensed with in all but doubtful cases, since a survey of the classical symptoms confirmed by radiographic findings was absolutely definite for purposes of diagnosis in most cases. The suggestion of Keith, mentioned by Dr. Irwin Moore, that "pneumatocoele" was a preferable term to "aerocoele," he was prepared to accept, but he could not agree with the suggestion of Dr. Moore, following Sir Arthur Keith, that the pneumatocoele recorded by Godlee and Bucknill was a

* By arrangement with Mr. Lawrence one half of the specimen was returned to the museum of University College Hospital, while the other half was included in the museum of the Royal College of Surgeons.

laryngocele; the neck had been traced through the thyro-hyoid membrane, and therefore it must be outside the larynx, and, of course, a pharyngocele, to which group Godlee rightly assigned it. Mention had been made of his omission to include the artificial enlargement of the pyriform fossa with the aid of leaden discs by natives of India and South Africa for depositing stolen coins and precious stones; he had been dealing exclusively with hernias and diverticular sinuses, not with mere artificial enlargements of natural cavities—with pouches, not with pouchings—and therefore had rightly excluded from illustration and consideration the interesting specimen in St. Bartholomew's museum.

THE SORROWS OF THE SEPTUM.

BY

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THE text of this article is taken from Pliny's *Historia Naturalis* (Bk. XI, Chap. 91): "Man is the only creature from which the blood flows at the nostrils; some persons bleed at one nostril only, some at both."

Pliny made that observation nearly nineteen centuries ago. It is so simple. It is so true. It is, as I shall show, the *fons et origo* of all the sorrows of the septum.

There is no haemorrhage of greater frequency, and no haemorrhage that is sooner forgotten. For the latter reason I found it difficult when I wrote the article "Epistaxis" more than a quarter of a century ago for the *Encyclopaedia Medica* to obtain very accurate statistics of its frequency. At that time I had the opportunity of putting questions to many hundreds of patients of both sexes, of all ages, and in all conditions of health. I found that one hundred and forty-two people in a thousand had recollection of the blood dropping from the nose. For the reason stated that must be accepted as a low estimate.

I further found that epistaxis was of more frequent occurrence in the male sex. Here let me anticipate by reminding you that deformities of the nasal septum are more frequent in males than in females. We now know—and this Pliny did not tell us—that the bleeding point in the vast majority of cases is to be found in the cartilaginous septum at a spot where there is a very free anastomosis of the terminal twigs of the vessels supplying the septum.

The human face, in comparison with that of the lower animals, is characterized by being extended vertically instead of horizontally. This characteristic determines the development of the septum, and the septum determines the development of the nose. The structures entering into the formation of the septum in man are subject to delayed or excessive development. The developmental activity continues, not only up to puberty, but, in a greater or less degree, some years afterwards. With that activity there must be an increase of newly formed blood vessels, resulting in a greater tendency to epistaxis and to deformities of the septum, as shown by the formation of ridges, spurs, and deviations. The development of the septum varies with the type of race; the higher the type the more prolonged is the developmental activity and the more common are the septal deformities.

It has been necessary for me to enter into nose-bleeding as peculiar to the human race as it is the cardinal point. It is difficult to remember any condition of the septum we are called upon to treat that is not vascular in origin.

In a paper strictly limited in words it is possible to mention only the more common of these conditions—such as haematoma, abscess, fibro-angioma, septal thickening, out-growths, ridges, spurs, crests, and, last but not least, deflections of the septum. In the group of fibro-angiomata must be included not a few of those cases diagnosed and treated as sarcoma. Further, in this group must be included the "bleeding polypus of the septum." Remembering the papers which have been written, the discussions that have taken place, the time that has been spent by general practitioners in absorbing that literature on this and similar simple septal growths, how true becomes the

difference drawn between the general practitioner and the specialist—the one always struggling to make less and less about more and more, the other always straining to make more and more about less and less.

Deflections and deformities of the septum are so common that the observation of Pliny might be amplified by stating that man—that is, civilized man—is the only creature in which the septum of the nose is not perpendicular. The higher we go in the human race the more correct this statement becomes. The collective result of independent investigations of a large number of human skulls has shown that deformities of the septum are present in 80 per cent. of European skulls. Those investigations were made on dried specimens in which the cartilage was generally absent. Clinical experience teaches us that some irregularity of the cartilaginous portion of the septum is the rule rather than the exception; so that in the higher types of races the abnormal becomes the normal. On the other hand, statistics based upon the examination of skulls of the lower types showed the reverse—the septum was free from deflections and irregularities in 80 per cent.

This "sorrow of the septum" has been handed down to us in art from the days of Pliny. Some scientists, after taking the most minute measurements of the nose of the Venus de Milo in the Louvre, came to the conclusion that the septum was not absolutely in the plumb. It is conceivable that had the missing arms, which have given rise to so much discussion among would-be restorers, been present, Venus, instead of holding up her drapery, would have had the left arm uplifted and holding a mirror, and the forefinger of the raised right hand adjusting the pros and cons of undergoing a submucous resection of the nasal septum.

In making a routine examination of the nose in all cases of affections of the ear, nose, or throat, it is truly remarkable how frequently we meet with ridges, spurs, and deformities of the septum, causing no inconvenience, no symptoms, and in no way material to the case, while their presence is not known to the patient. On the other hand, it is equally remarkable that, in the eyes of some rhinologists, the very presence of a spur or a deviation is a menace to the health of the patient, and that some orthopaedic surgery in the nose would cure almost any malady. Time will not permit me to enter into detail of the indications and contraindications for surgical intervention. Experience has shown that the nasal symptoms complained of are frequently in no way due to any irregularity of the septum that may be present, and that they can be completely removed by other means without removing or operating upon the nasal septum. Those other means must be left for another occasion.

This brings me to the much smaller group of cases in which orthopaedic surgery upon the septum is called for. First of all the choice of the operation. Here again time will not permit me to enter into the relative merits of the numerous operations that have been devised for the correction of septal deformities, and of the one for the removal of the offending septum. It is now some twenty years since the operation for the removal of the septum, bony as well as cartilaginous, by submucous resection was introduced. The number of instruments that have been devised for the operation, and the number of septa that have been dealt with by submucous resection, justify the statement that it would be difficult to mention an operation in minor surgery that has received so much attention, and (judging by the way it is referred to by the younger surgeons as *the septum operation*), we might add, to the exclusion and in ignorance of all other operations upon the deformed septum. It has become a fetish. There is increasing evidence that the general public has had enough of the removal of pieces of gristle from the nose. The end-results, however gratifying to the surgeon, are not always equally satisfactory to the patient.

The operation from the first appeared to me to be faulty surgery, inasmuch as it deprived the patient of a rigid septum and thereby impaired the nose as an organ of respiration. The nasal passages after the operation are left at times too patent, the septum too thin, and patients complain of symptoms due to the flapping of their membranous septum in the passage of air. Further, in