An Address ON STASIS AND THE PREVENTION OF CANCER.

DELIVERED TO THE HUNTERIAN SOCIETY

BY

A. C. JORDAN, C.B.E., M.D., M.R.C.P.,
PRESIDENT OF THE SOCIETY.

In considering the causes of cancer two factors present themselves—a known and an unknown factor. The latter is still elusive in spite of every investigation. I am not, however, concerned here with the actual causative agent of new growth—whether it be an infective organism, a parasite, or an acquired vicious function of cells. I am solely concerned with the known factor, the principle of which is universally recognized: that long-continued chronic irritation is apt to lead to the occurrence of cancerous change. The object of this paper is to draw attention to the various ways in which cancer is brought about by stasis.

Cancer due to Local Irritants.

Typical instances of this are chimney-sweeps' cancer (which affects the skin in certain situations), cancer of the lip from the constant irritation of the stem of a clay pipe, and cancer of the tongue from the local irritation of jagged or decayed teeth. Any chronic skin sore is apt to become cancerous. Well-known examples of this occur among workers in oil-fields, and in the cancer which appears in old x-ray dermatitis. In China men suffer from cancer of the posterior wall of the pharynx and upper gullet from the irritation set up by the constant eating of hot rice; and in Kashmir, where the natives carry a clay charcoal burner in a wicker basket across the lower abdomen, "Kangri burn," as it is called, sets up cancer of the skin of the lower abdomen and groins, and causes more than half the cancer from which this race suffers.¹

This view is strikingly upheld in a recent paper by Dr. A. Paine,² who demonstrates conclusively, by observations based entirely on the histological changes found in early cases of cancer, that cancerous change follows directly upon a chronic inflammatory condition, which he traces to a microbial infection. He illustrates the histological changes which occur in the mammary gland as it passes from normal glandular structure through various stages until cancer is established. The October number of the *British Journal of Surgery* for 1920 contains further histological confirmation of the transition from simple cystic disease to cancer in the breast.

The Beginning of Stasis.

If careful inquiry be made into the history of patients with stasis, its commencement can usually be traced to the first years or even weeks of life. Many of the patients have been constipated and "bilious" since early childhood. In youth the tissues can resist disease. An x-ray examination of healthy young men (medical students, members of a hospital football team) was carried out some years ago, bismuth meals being given with the object of establishing the "normal." The investigation yielded the surprising result that many of these robust, healthy youths had the colon prolapsed, the transverse colon hanging below the pelvic brim.

Symptoms begin to make their unwelcome appearance when the young man embarks on a strenuous career with insufficient opportunity for rest; they begin to overcome him when, with advancing years, his recuperative powers wane.

Microbic Infection of the Intestines.

Before dealing with the changes that take place in the large intestine, I would emphasize the fact that in chronic intestinal stasis active pathogenic bacteria thrive in the bowel: these form poisonous products in the intestines, which are carried by way of the thoracic duct into the general circulation, and thus reach every living cell of the body. No tissue or organ can resist their baleful influence; every tissue attacked by them loses some of its power of

resisting pathogenic influences, and this lowered resistance has a very potent influence in favouring the occurrence of cancer.

"Colitis" Leads to Cancer.

X-ray investigation shows that chronic catarrh of the large intestine is an extremely frequent condition in stasis. It occurs early in the course of the disease and is obstinate to treat. The mucous membrane is slow to recover and is apt to relapse under slight provocation. This catarrh is called "colitis" and is classified according to its severity as "mucous colitis," "membranous colitis," or "ulcerative colitis." In the more advanced and chronic stages, although there may be no definite ulceration, there is always erosion of the mucous membrane. In fact, the mucous membrane is in a condition which encourages the occurrence of malignant change.

Radiographically, the primary seat of stasis is in nearly all cases seen to be the large intestine, for solid faecal masses remain lodged in it, set up irritation, and give rise to local catarrh of the bowel wall. Stercoral ulcers of the caecum are sometimes discovered *post mortem*; these ulcers may give rise to cancer. Adventitious bands, which Sir Arbuthnot Lane has described as being formed along the alimentary tract as the result of stasis, are seen, on x-ray examination, most frequently in the iliac colon. These bands, and the consequent kinking which occurs when the patient is upright, set up active and constant local irritation. The iliac colon is apt to become catarrhal, with tonic constriction of the circular muscle, giving a characteristic x-ray picture, and this leads to great reduction in its lumen. The outer coats of the bowel, weak from chronic inflammation and from fatty change, give way in places owing to the abnormal pressure, and the condition known as "diverticulitis" is set up. This stage is recognized radiographically by the narrowed central lumen with small isolated pockets of bismuth on either side. "Diverticulitis" is one of the signposts that warn us of danger ahead. In other cases the splenic flexure is firmly fixed in a high position under the left diaphragm by adventitious bands. In the upright posture this flexure becomes sharply kinked, and its mucous membrane is subjected to abnormal friction from the force of the peristaltic waves in their effort to thrust the solid masses of faeces through the kinked flexure. This abnormal friction produces irritation and favours cancer.

The hepatic flexure does not often become kinked in the same way as the splenic flexure, but the transverse colon, near the hepatic flexure, is often held up by bands which descend from the lower border of the liver near the neck of the gall bladder, and spread, fanlike, over the pylorus, to end in a broad base which attaches itself to the first part of the transverse colon. This band supports the pylorus, and often causes definite obstruction to the transverse colon just beyond the hepatic flexure. At first the obstruction only occurs in the upright posture, but as the condition grows worse the bands take a firm hold of the transverse colon, and produce a partial mechanical obstruction independent of posture. When this band is divided the relief of the transverse colon from pressure is immediate. At the same time weight is taken off the pylorus. During one operation a distended gall bladder was seen to empty the moment this band (which was kinking the bile duct) was divided. If the irritation and obstruction produced by bands is neglected, cancer ensues.

The danger of cancer arising in the large intestine where bands and sharp angulations have formed is enhanced by peristaltic efforts to overcome the obstruction caused by these bands and kinks. Sir Arbuthnot Lane has pointed out that a feeble organism makes no attempt to resist the fall of the viscera, and makes little propulsive effort to thrust the faeces through the large intestine. To this extent, therefore, a robust person is more liable to suffer from cancer of the large intestine than a feeble one, for the robust man develops bands which form obstacles, and then his bowel makes strong propulsive efforts to overcome these obstacles. Thus the kinked portions of his bowel are subjected to a far greater mechanical strain than the mobile large intestine of a feeble woman.

The part played by mechanical strain in the large intestine is well illustrated in the case of a man of 57, in whom nine years ago Sir Arbuthnot Lane removed the caecum and ascending colon for a villous carcinoma of the lower

part of the ascending colon. He implanted the small intestine into the middle of the transverse colon. The man made a good recovery, and lived in good health for more than eight years. Constipation then arose, and it was found that he had an independent cancerous growth in the lower part of the iliac colon, where the bowel was tied by old fibrous bands to the left iliac fossa, just above the pelvic brim—that is to say, in the position of Lane's "last kink." This is the point where the peristaltic waves had met with resistance owing to the bands which bound the bowel to the left iliac fossa. Occurrences of this kind have shown Sir Arbuthnot Lane the necessity of making his junction into the pelvic colon beyond the last kink, even for a growth limited to the proximal portion of the large intestine.

The Mobile Caecum.

Recently the idea has been revived in more than one quarter of operating for mobile caecum, with a view to fixing the caecum and ascending colon in the position in which they are found in the majority of healthy persons. In many cases I believe this operation is justified and successful. I have demonstrated the severe ileal torsion which occurs in the upright posture when the caecum is mobile, and this torsion is rectified by the operation in question.

Those who adopt this procedure, however, concentrate attention exclusively on the right side of the abdomen. This I deplore, since the study of stasis has shown the importance of taking a wide and comprehensive view. Undue attention to any one factor of stasis is disastrous to a clear conception of the subject.

An elongated pelvic colon may coexist with a mobile caecum, and may be so extreme as to render the operation of fixing the caecum and ascending colon almost useless, or bands may obstruct the splenic flexure or the iliac colon, and involve the left ovary. These bands and the disability they cause would remain unrelieved. I am aware that a careful surgeon would note these abnormalities when present, and deal with them as the occasion required. The fact, however, remains that the advocates of this operation make no reference to them in their writings, and their disciples are likely to fall into error.

Several writers of late have referred to the vertical position of the ascending colon as a serious obstacle to the progress of faeces through the large intestine. Had they watched the passage of a peristaltic wave through the large intestine (as I have on many occasions), they would realize that the force of a peristaltic wave of the big bowel is so great as to nullify the adverse effect of gravity on the faecal mass to be moved upward. In another way, however, the weight of the loaded caecum and ascending colon is a source of real difficulty when the caecum is mobile, for the dropped caecum exerts a pull on its mesentery, and produces torsion of the end of the ileum, as already stated.

The statement that gastric and duodenal ulcers only occur in the subjects of a mobile caecum is contrary to my records. Some of my worst cases of pyloric and duodenal ulcer have been in the subjects of fibrous bands, which descend from the lower border of the liver and support the first part of the transverse colon and the caecum or terminal ileum—subjects, therefore, in whom the caecum and ascending colon are held up well at the normal level.

Gastric and Duodenal Ulcer.

In the small intestine the conditions are different. The contents of the small bowel are liquid, and do not produce the same mechanical pressure and friction on the lining membrane of the bowel as the solid faecal masses contained in the large intestine. In severe cases of stasis the lower coils of the small intestine teem with pathogenic microbes, and poisonous toxins are absorbed into the system through the mucous membrane of the small intestine, yet the microbes are not in continual contact with eroded portions of the mucous membrane of the bowel. The kinks which occur in the small intestine (that is, Lane's ileal kink, the kink produced at the end of the ileum by a controlling appendix, and the kink at the duodeno-jejunal junction) may give rise to severe mechanical obstruction, especially when the overloaded coil produces torsion of the bowel close to the kink. But this obstruction, even when severe, is rarely permanent. It is brought on by prolonged

exertion, for the over-fatigued muscles of the abdominal wall fail to support the viscera. With rest and recumbency the condition is relieved. Even a duodenal ulcer is rarely persistent. It has been clearly shown that a duodenal ulcer only occurs when the duodenum has become distended and congested in consequence of kinking at the duodeno-jejunal junction. If ileal stasis exists pathogenic microbes invade the duodenum from the lower ileum, and the duodenal mucous membrane suffers. If a patient suffering from duodenal ulcer is confined to bed for two or three weeks, x-ray examination shows that the duodeno-jejunal kink is relieved, the duodenal distension has passed off, and the ulcer has healed. From these considerations we are led to expect that cancer is of unusual occurrence in the small intestine, and experience proves this to be true. When it does occur it is usually due to direct extension from the caecum through the ileo-caecal valve, or from the pylorus into the first part of the duodenum.

In the stomach the conditions are very different from those which exist in the duodenum. Duodenal distension causes spasmodic closure of the pylorus, which prevents the regurgitation of the contents of the distended duodenum, and keeps back the gastric contents, so that they shall not increase the duodenal distension. This pyloric spasm is found, from x-ray experience, to be very persistent. In the case of a patient with a distended duodenum, we have already stated that a short period of recumbency (two or three weeks) suffices to relieve the duodenal distension, but the pyloric spasm, which owed its occurrence in the first place to duodenal distension, is found to be present still, though diminishing in severity. The reason for this appears to be the state of the mucous membrane of the pyloric portion of the stomach, for the congestion of the mucous membrane of the duodenum is not limited to this organ but extends into the stomach, giving a narrowed conical pyloric portion of the stomach in the x-ray picture. Pyloric spasm produces certain changes in the stomach. There is an increase in the strength of the peristaltic waves; these waves are seen to be deeper than in the normal stomach, and the beginning of each wave can be traced to a position nearer the cardiac end of the stomach. These strong waves are seen beating up against the pylorus, which is kept closed against them by the spasm already described. The mucous membrane is congested; pathogenic microbes find their way in from the infected duodenum and set up ulceration of the mucous membrane of the pylorus. This takes one of two forms. Either it is a single chronic ulcer, with a depressed base and thickened infiltrated edges, or it is a widespread erosion of the pyloric mucous membrane, with general infiltration and microbial invasion of nearly the entire thickness of the wall of the stomach in this region. Both forms of ulceration are very rebellious to treatment and may persist for years, yielding only when strict measures of diet, régime, and treatment are employed. The essential factor in treatment is to cure the stasis which radiological investigation invariably reveals in the large intestine and in the ileum in these cases.

Cancer of the Stomach.

The stasis which has caused the ulcer must be treated, and then the damage created by the ulcer can be repaired. In cases which are not successfully treated the chronic ulceration at the pylorus is apt to undergo malignant change. Then we get either a cancerous patch at the pylorus, in the case of a single ulcer, or a widespread malignant infiltration of the pyloric portion of the stomach.

The stomach cannot always evacuate its contents in the normal time despite the abnormally strong gastric peristalsis, for the waves cannot overcome the pyloric spasm, the stomach becomes over-filled, and the greater curvature drops. The lesser curvature is then subjected to abnormal strain, its mucous membrane becomes congested, and an ulcer is liable to appear on the lesser curvature. Experience has taught us that an ulcer of the lesser curvature is very difficult to treat successfully. The ulcer becomes chronic, its walls become raised and indurated, and the way is prepared for a malignant growth.

Radiographically a chronic ulcer of the lesser curvature gives a most striking and characteristic picture. The transition from a simple chronic ulcer to a malignant growth is very clearly illustrated by the accompanying slides. In one of these the change of form due to the

malignant involvement of the chronic ulcer is so slight that it was not perceived, but an operation performed immediately after the investigation proved beyond doubt that malignant disease was present. The next slide shows a more decided deviation from the typical form of a chronic ulcer of the lesser curvature, but its origin can be recognized. In more advanced cases the position of the original chronic ulcer can still be made out, but in far advanced cases of cancer of the middle portion of the stomach the skiagrams show so irregular an outline that they no longer reveal the form of the chronic ulcer. When this advanced stage has been reached the cancerous growth probably occupies a large area of the stomach, and extends to the cardiac orifice, where it may give rise to oesophageal obstruction. Probably it has further extended through the walls of the lesser curvature and has involved one or more of the adjacent organs—the tail of the pancreas, the spleen, and the lower border of the liver. Keen discussion still rages round the question of the origin of gastric cancer on the site of chronic ulcers. I do not claim that it is possible to determine by radiological investigation the exact period of the appearance of malignancy. This is a question of a few cells, and can only be determined by careful microscopic examination of sections. It is sufficient to assert that the shape of a simple chronic ulcer of the lesser curvature is almost as typical and as constant, say, as the shape of a fiddle, and that a very slight deviation or irregularity of contour may be the only indication of a malignant change. The resemblance is no mere superficial one; both the simple and the malignant ulcers of the lesser curvature show the same enlargement and dropping of the pyloric portion of the stomach, the tight pyloric spasm, the distended, "writhing" duodenum. Both show pronounced ileal stasis, and exhibit the changes in the large intestine already described as resulting from stasis.

A well-known physician recently wrote in the journal of his hospital somewhat as follows: "Cancer of the stomach comes generally 'out of the blue,' with no preceding history of gastric trouble." I find myself in direct disagreement with this view, and have recently placed my conviction on record.³ The subject is so apposite to the present discussion that I feel impelled to repeat my argument. I can scarcely recall or find notes of a single case which supports the notion that cancer ever comes "out of the blue." The patient may have become accustomed to his disorder, or make no complaint of it, but careful inquiry elicits, nearly in every case, a life-long history of constipation, flatulence, or biliousness. Radiological investigation reveals incontrovertible evidence of long-standing disorder. Here, for instance, is the case of a lady whose gastric cancer came to her "out of the blue." On careful questioning it transpired that she had always been inclined to biliousness and constipation. On radiological examination I found an enormously elongated pelvic colon rising into the right hypochondrium, where it came into contact with the hepatic flexure. I found, further, that her caecum was firmly impacted in the pelvis. When I made a digital examination of the rectum I found the caecum filled with hard faecal masses firmly pressed into the wall of the rectum. For years she must have tried to force her caecum through the wall of the rectum whenever she went to stool. This is the type of patient whose cancer is said to come "out of the blue."

Humoral Pathology.

Still more recently another physician, in despair of arriving at the truth regarding the cause of gastric and duodenal ulcer, took a plunge into the remote past, and found himself in a world of noxious humours. Out of this world he was thrust suddenly back into the light of to-day. So he greeted us with a postulate to the effect that certain men are born with a "diathesis," which makes them liable to suffer from gastric ulcers—others from duodenal ulcers.

Why stop there? Why not say there are among us some who are subject to a toothache diathesis. It is so simple; it abolishes the need for detailed study of pathology. Again, why restrict the idea to animal pathology? Why not apply it also to machinery. If an aeroplane crashes, obviously the machine is the subject of a "nose-diving diathesis." Here on the screen is one of the duodenal ulcer "diatheses": A medical man aged 46 is suffering from chronic ulcer of the duodenum. His caecum is impacted in the pelvis, and his terminal ileum is subject

to so severe a degree of torsion that there is great difficulty in the passage of its contents into the caecum. The next slide shows a gastric ulcer "diathesis." She has her transverse colon down in the pelvis, an ileal kink, and a severe degree of chronic catarrh in the lower portions of the big bowel, with extreme stasis in its proximal portions.

These are, in my experience, typical instances of the subjects of the so-called gastric and duodenal ulcer "diathesis." In all cases of these ulcers I am able to show the cause clearly in the ileum and the large intestine.

Cancer of the Oesophagus.

In considering the oesophagus we must remember that a dropped stomach exerts tension upon the lower end of the oesophagus. This abnormal tension on the lower end of the oesophagus produces spasm of the cardiac orifice, and in cases of cardiospasm we find dropping of the stomach a constant phenomenon. With the spasm of the cardiac orifice there is congestion of the mucous membrane, and cancer of the oesophagus occurs at its lower end more frequently than at any other part. The only other situation in which oesophageal cancer is of frequent occurrence is at the point of bifurcation of the trachea where the right bronchus crosses the oesophagus and causes a deviation of its anterior wall. The impact of solid food boluses thrust against this prominent portion of the oesophageal mucous membrane furnishes a source of chronic irritation likely to produce cancer if the oesophageal mucous membrane becomes unhealthy from the toxæmia of stasis.

Cancer of the Liver, Gall Bladder, and Pancreas.

Opening into the upper end of the intestinal canal are the ducts of the pancreas and the liver. Stasis, as already shown, causes distension of the duodenum. As the stasis becomes more pronounced the congestion and infection of the duodenum extend into the orifices of the pancreatic duct and the bile ducts. Chronic pancreatitis results and may end in cancer. The gall bladder in its turn becomes distended from congestion of the mucous membrane of the bile ducts. Chronic catarrh of the gall bladder is set up, mucus is secreted, and in many cases gall stones are formed. As the result of infiltration and infection of the mucous membrane, or from erosion due to the long-continued irritation of gall stones, cancer of the gall bladder or the bile ducts may occur.

The liver, through the portal system, receives toxins in large quantity from the infected intestines, and is bound to suffer like the pancreas. Wherever we look we see the havoc wrought by stasis and the damage done by circulating toxins.

The alimentary tract is doubly vulnerable, for not only is it exposed to direct attack by the pathogenic bacteria in the bowel, and the irritant contents of the intestines, but the bowel wall is a victim of the destructive action of the circulating poisons, and is abnormally vulnerable.

Cancer of the Breasts and Thyroid Glands.

The secretory glands are not immune, and the mammary glands are among the first to suffer. The first change in the mammary glands is the appearance of nodules, or chronic mastitis. If the stasis is corrected, either by operation on the intestines or by remedial measures, the mastitis passes off completely, and the breasts become smooth. If cases are unsuccessfully treated or neglected the nodules in the breasts become larger and firmer, and cysts appear. Later a cancerous change may supervene. It appears certain that cancer of the breast is, in nearly every case, preceded by chronic mastitis due to toxic absorption from the intestines.

The thyroid glands in many cases of stasis become atrophied. In other cases cysts form in the thyroid gland, in others morbid enlargement occurs and the clinical features of "exophthalmic goitre" appear. Occasionally cancerous change in the thyroid gland is the closing chapter of the disease.

Cancer in the Mouth and Throat.

In the mouth the circulating toxins render the mucous membrane of the gums vulnerable to infective microbes, and pyorrhoea occurs in a large proportion of stasis subjects. This unhealthy condition of the mucous membrane of the mouth is another potential source of cancer

affecting the mouth or tongue. Chronic pharyngitis is of frequent occurrence in the subjects of stasis, and in older subjects may lead to cancer of the pharynx.

Cancer of the Uterus and Ovaries.

Many gynaecological complaints are due to stasis. In these sufferers we usually find the large intestine dropped so that the caecum and the transverse colon are in the pelvis. Associated with this dropping is retroversion of the uterus, and on making a digital examination of the rectum the finger encounters the fundus of the uterus resting upon the anterior wall of the rectum, often obstructing its lumen. During defaecation the fundus of the uterus is pressed firmly into the rectum in such a way as to render the passage of faeces very difficult. The uterus becomes engorged, and the menstrual losses are excessive. Leucorrhoea due to chronic endometritis ensues, fibroid disease of the uterus follows, and in others carcinoma appears as the culmination of the chronic inflammatory condition. The ovaries are not immune. The bands constituting the kink of the ileum and the iliac colon appear, in the first instance, in the iliac fossae; in some cases they reach into the pelvis, and become attached to one or other ovary. As the stasis advances the attachment becomes more extensive, till finally the ovary becomes gripped by newly formed fibrous bands. The Graafian follicles are prevented from rupturing as they ripen, and the ovary becomes cystic. Many cystic ovaries assume malignant change sooner or later.

In men the prostate gland suffers from fibrous change comparable to that which occurs in the uterus. Hypertrophy of the prostate gland frequently occurs, and occasionally malignant disease follows.

TREATMENT.

I have endeavoured to point out in this paper the dangers of neglected stasis and its far-reaching consequences, and shall conclude by outlining the means that should be taken to prevent the occurrence of cancer. They may be classified as follows:

- I. Avoid stasis in general, with its attendant toxæmia; in other words, keep all the tissues healthy.
- II. Avoid sources of local irritation in the alimentary tract.
 - (a) In the lips and mouth and tongue—avoid rough pipe stems, jagged teeth; abolish pyorrhoea.
 - (b) In the pharynx and larynx—eliminate chronic catarrh.
 - (c) In the oesophagus—swallow no large boluses of food; eat slowly; masticate thoroughly.
 - (d) In the oesophagus and stomach—avoid excess of strong irritant spices (for example, mustard, pepper) and avoid extremes of heat and cold, especially in drinks.
 - (e) In the stomach and duodenum—prevent duodenal distension, pyloric spasm, and duodenal and pyloric congestion, by abolishing the ileal stasis which causes them.
 - (f) In the small intestine—prevent bacterial decomposition of the contents of the jejunum and ileum due to ileal stasis, by the means shortly to be described.
 - (g) In the large intestine—prevent stagnation and decomposition of solid faeces in any part; combat catarrh by local and general means.

It is never too early in life to commence these measures. In infancy, even on the first day of life, see to proper feeding. If artificial feeding is necessary the milk should be given at regular intervals in measured amounts at the correct temperature; avoid overfilling the infant's stomach. Constipation in the infant is best combated by small doses of liquid paraffin.

In childhood, provision should be made for warm clothing, good regular meals, with vitamins in the diet, an active day with a midday rest, and a long, restful night. During school and college years the same conditions should be continued, with a regulated open-air life, avoiding extremes of exhausting effort, and insisting on an early hour for retiring and a minimum of eight hours in bed.

In patients who have not had the advantage of suitable conditions from infancy—that is, in whom stasis in a more

or less severe degree is already present, the exact method to adopt must depend on the precise anatomical and pathological conditions which exist. If mechanical faults are present—for example, obstruction due to bands, or to cicatrices—these must be dealt with by surgical means. If the large intestine is already grievously damaged so that it is no longer capable of repair, nothing short of its removal will avail.

In less extreme cases much good may be done by careful attention to the details of hygienic living already described. In addition mechanical means should be taken of supporting unduly dependent portions of the bowel, and liquid paraffin given to ensure two or three soft evacuations daily, vaccines to overcome the toxæmia due to bacterial action in the large and small intestine, while medicines are useful to aid digestion, combat catarrh, and lessen spasm at the sphincters.

Cancer of the uterus and ovaries follows upon chronic inflammatory conditions of these organs. As already explained, stasis plays a very important rôle in bringing about these conditions of chronic inflammation. It is clear, therefore, that much can be done to prevent the occurrence of cancer in the pelvic organs by means which prevent or relieve chronic intestinal stasis.

To the genius of Sir Arbuthnot Lane we owe our understanding of the far-reaching effects of chronic intestinal stasis. Although we have not yet found the full solution of the cancer problem, may we not justly believe that we are at the dawn of a new era in the prevention of this dread disease?

The address was illustrated by lantern slides.

REFERENCES.

¹ Mayo Clinic Papers, 1917. ² *Lancet*, October 2nd, 1920. ³ *Ibid.*, 1920, i, p. 756.

EIGHTY-EIGHTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Cambridge, June 30th to July 2nd.

SECTION OF SURGERY.

INFLAMMATORY LESIONS OF THE NASAL ACCESSORY SINUSES

FROM THE POINT OF VIEW OF THE GENERAL PHYSICIAN AND SURGEON.

BY

HERBERT TILLEY, B.S., F.R.C.S.,

Surgeon, Ear and Throat Department, University College Hospital, London.

It is unnecessary to dwell on the importance of recognizing that many conditions of ill health are caused by the absorption of poisons produced by morbid processes going on in one or more regions of the body. In proof of this I need only remind you of the pioneer work of William Hunter, who pointed out the relationship between oral sepsis and some of the graver types of anaemia, and their association with certain pathological conditions of the gastro-intestinal tract. In more recent times Poynton¹ has emphasized a similar connexion between infective foci and certain types of cardiac infection in childhood; Rows and Orr have brought forward evidence which seems to show that some diseases of the nervous system are caused by the absorption of toxins from a distant focus of infection, while McCarrison's work on the same lines with regard to the thyroid gland will be fresh in the memories of all who keep in touch with the daily progress of medicine.

When such sources of infection are situated in the teeth or in the crypts of the tonsils, it is easy for the general physician and surgeon to detect them because the diseased conditions are readily seen and the symptoms to which they give rise are liable to acute exacerbations which cannot fail to attract attention to the obvious source of trouble.

But it will be a more difficult problem when the infective elements are situated in the accessory sinuses of the nose. These complicated air cells are hidden away