TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD JANUARY 7, 1930

The President, DR. ASTLEY P. C. ASHHURST, in the Chair

CALVIN M. SMYTH, JR., M.D., Recorder

ALLERGY AND ASTHMA IN POST-OPERATIVE ATELECTASIS

DR. WALTER ESTELL LEE and, by invitation, DR. HARRY B. WILMER and DR. HERBERT MARSHALL COBE read a paper entitled "A Report of the Incidence of Allergy and Asthma in a Group Developing Post-operative Atelectasis," for which see page 651.

DR. WALTER ESTELL LEE said that in the findings of allergy he was never convinced that what had been observed was the only etiological factor. Something must start the phenomenon of post-operative atelectasis and why 20 per cent. of these cases developed this was hard to explain. Two of these cases which had been presented proved that not only allergy but other factors are necessary. First the case spoken of as number three. This man had a right-sided herniorrhaphy. There was a definite history of asthma and he developed on the second day atelectasis on the right side. A year later, he came into the hospital and had herniorrhaphy on the left side and developed a massive atelectasis on the left side. This man has asthma, the result of pain and posture and he has one of the factors necessary. Another boy was operated on for appendicitis. He developed massive atelectasis but the interesting thing is that, although the boy is still allergic, eighteen months later he had a mastoid operation and nothing happened. As a matter of fact there are no recorded cases of post-operative atelectasis following herniorrhaphy on one side while the second one developed atelectasis following abdominal operation.

OXYCEPHALIA

DOCTOR THOMAS A. SHALLOW presented an infant, aged four and a half months, male, white, who was admitted to the Jefferson Hospital, in the service of Dr. J. Chalmers DaCosta, with a history of having generalized convulsions.

The child had been delivered as a breech presentation after a very difficult labor. After birth he was not cyanotic nor was there any other symptom which led the physician in attendance to suspect the presence of birth hæmorrhage. The mother stated the child did not seem to be as observant as other children of his age. He was fed from the breast up to his admission to the hospital.

Suddenly, November 13, 1929, one week before his admission to the hospital, he had a generalized convulsion, involving both extremities—the attack lasted ten minutes. The same evening he had a similar attack which lasted twenty minutes. The following

day he had two attacks which were more aggravated than those of the first day. The mother states positively that the child did not observe objects as well as he had before the attacks. She was very apprehensive about his vision.

The family history was negative. The patient is a well-nourished male infant, not dyspnœic nor cyanotic. The head is larger than normal in the vertical diameter. The fontanelles are wide open. The parietal bones are prominent. The eyes are fixed and staring; there is fairly good rotation but there is impairment of convergence. Eye-ground examination of the right eye: media clear, disc pale, central margin clearly defined. Left eye: similar. These conditions indicate the presence of primary optic atrophy of both eyes; paralysis of convergence.

The nasal passages and nasal septum are normal; the alveolar processes are normal; the hard palate is much higher than normal. The pharynx is normal. The chest and abdominal examination discloses no evidence of thoracic or intra-abdominal pathology. There is no deformity or muscular weakness of the extremities present. The reflexes are normal. Kernig's sign is negative.

Several diagnoses were considered: 1, hydrocephalus; 2, hæmorrhage of the new born; 3, tumor of the brain, based on (*a*) the history of convulsions; (*b*) the enlarged head; (*c*) the primary optic atrophy.

Studies for the diagnosis of hydrocephalus.—A lumbar puncture was done; the fluid was normal in appearance and was not under pressure. A needle was introduced into each lateral ventricle through the anterior fontanelle. On the right side the needle entered the lateral ventricle three centimetres from the scalp; the fluid was under moderate pressure, fifty-five cubic centimetres were removed. On the left side the needle entered the left lateral ventricle five centimetres from the scalp. The fluid pressure was decidedly greater on this side and seventy-three cubic centimetres of spinal fluid were removed from the ventricle. Air was introduced into each lateral ventricle corresponding to the amount of fluid removed, that is, fifty-five cubic centimetres of air were introduced into the right ventricle and seventy-three cubic centimetres of air were placed in the left lateral ventricle.

Comment.—It was thought, because of the distance traversed by the needle to reach the lateral ventricles, the child did not have a marked hydrocephalus. It was also noted that the level of the roof of each ventricle and the capacity of the ventricles varied.

Doctor Manges reported that the X-ray shows a head much higher than the normal; the sella tursica is small, the sutures at the base of the skull seem to be united. There is complete absence of convolution depressions on the entire table of the skull. Possibly it is too early to expect convolution depressions to appear, but the impression is that the brain is not in contact with the skull.

Figure 1 shows the location of both ventricles, the left ventricle on the lower plane than the right. Both lateral ventricles, while slightly enlarged, are not hydrocephalic. The third ventricle is many times larger than normal. The report of the X-ray examination furnished the added information that this child had a much higher head than normal, associated with fusion of the basal sutures. Its failure to demonstrate lateral ventricular hydrocephalus led to the consideration of a fourth possibility—*oxycephalia,* that interesting deformity which is called by some "tower head," by others "turmschädel," which is caused by early fusion of some of the sutures of the skull, preventing the normal expansion of the brain.

The etiology of turmschädel or tower skull is disputed. It is claimed by some that traumatism at birth is a factor in the production of synostosis of the sutures. It is claimed by others that rickets is the etiologic factor in its production. There seems to be no question in this case but that the child had been delivered after difficult breech labor. The long bones were X-rayed and Doctor Manges reported evidence of rickets in some of them.

On December 22, a number of weeks after admission to the hospital, the patient had a return of the convulsions with repeated general spasms of the flexion type involv-

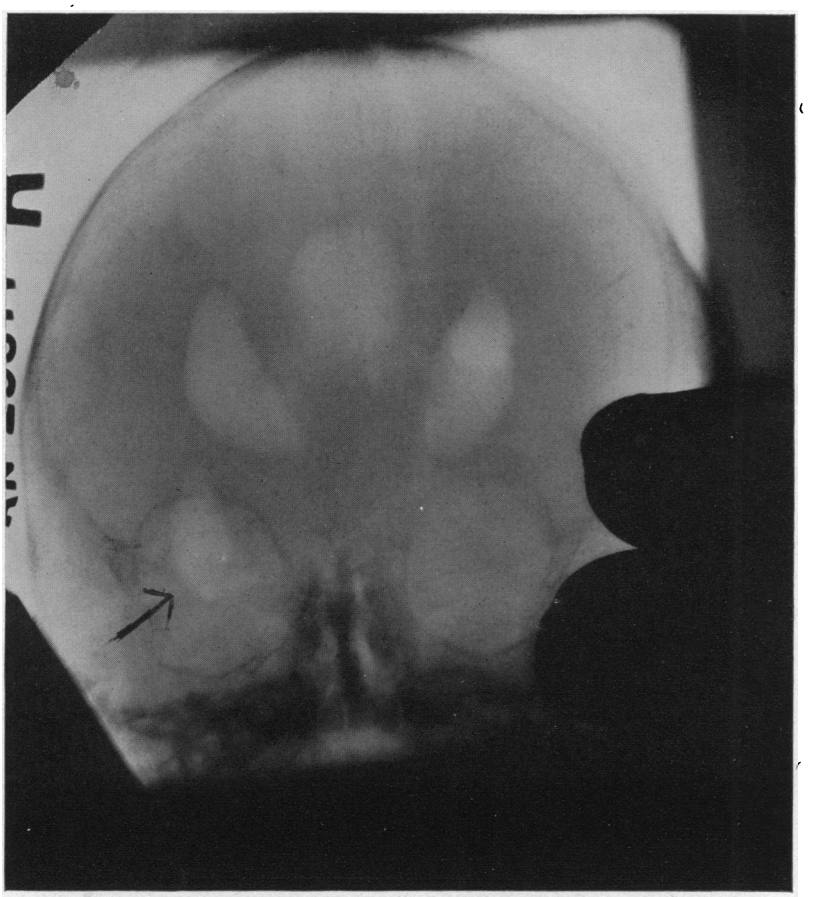

FIG. 1.—Showing the position of both lateral ventricles and a greatly distended third ventricle. Showing over the right eye a collection of air in the basal cistern at the point of penetration of the base of the skull.

ing both extremities. The child was not unconscious but had between forty and fifty spasms within three hours. The seizures appeared to be the typical tetanic flexion spasms of the hands and feet seen in rickets—eliminating the possible diagnosis of birth hæmorrhage, which was made on the history of convulsions before the patient was admitted to the hospital. A spinal tap was done and the tetanic spasms subsided within twenty minutes. The reason for this was not clear.

The laboratory examinations failed to reveal anything of an unusual nature except a slight lymphocytosis.

On the basis of the above oxycephalia was the presumptive diagnosis, but the possibility of brain tumor had to be considered. If there were a brain tumor present, causing obstruction of the aqueduct, choked disc would have been noted, not primary optic atrophy; lateral ventricular hydrocephalus would have dominated over third ventricular hydrocephalus.

An encephalogram was done to determine the extent of the obstruction of the aqueduct. Only fifty-five cubic centimetres of spinal fluid could be obtained by spinal tap.

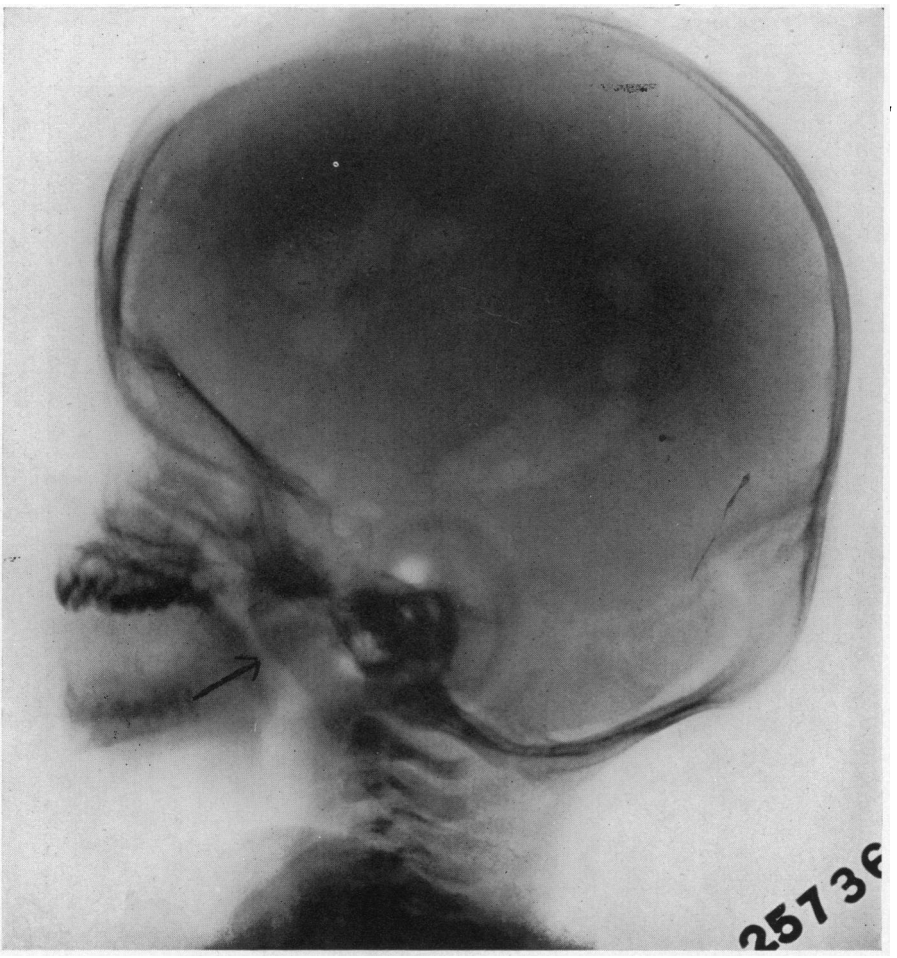

FIG. 2.—Showing the high head of Oxycephalia. The position of the floor of the skull with the anterior and middle fossæ almost on the same plane. At the arrow point showing the protrusion through the base of the skull into the pharynx representing the position of the collection of air in the region of the right orbit in Fig. 1.

An equal amount of air was introduced. The X-ray picture showed some air in each lateral ventricle; most of the air was collected in the basal cisterna. Figure 2 shows a bulging into the pharynx from the floor of the skull. This finding is in accord with the observation of Towne (*A. J. M. S.*, 1928). In one of his reported cases the brain herniated into the nose; in another of his cases there was an erosion of the base of the skull. The reporter remarked that because of the peculiar conformation of the floor of the skull in oxycephalia there is mechanical obstruction at the aqueduct. In this case the ventricles are not on the same plane (Fig. 1). The drainage from the basal cisterna is

impeded, the basal cisternæ are distended, eroding the floor of the skull, making pressure on the optic tract and producing primary optic atrophy.

This case seems to confirm the belief that rachitis is the etiological factor in the production of the oxycephalia, because of the tetanic spasms and the presence of the X-ray manifestation of rachitis in the long bones.

DR. FRANCIS C. GRANT said that from the history of the patient and from an examination of the X-ray plates, he rather felt that this was unquestionably a case of oxycephalia. He believed that brain tumor may be excluded inasmuch as the child had a bilateral optic atrophy. The convulsions or spasms from which the child suffered, he believed, could be attributed to rickets. With regard to the ventriculographic pictures which Doctor Shallow obtained, it seems probable that the reason for the inequality may well be that all of the fluid is not removed from the ventricles which therefore are not completely filled with air. The fact that he was able to remove 128 cubic centimetres of fluid from both ventricles combined makes it obvious that the child has an internal hydrocephalus. This is confirmed by the enlargement of the third ventricle which usually occurs in this condition. With regard to the etiology of the cranial condition, Doctor Grant said that a tower skull is commonly produced by premature union of the sutures at the base of the brain. This prevents the floor of the skull from growing at the same rate as the vault; crowds together the structures at the base and may account for the optic atrophy here seen, by stretching the optic nerves within their foramina and expansion of the hydrocephalus by interference with the circulation of the cerebrospinal fluid through its channels on the base of the brain. With regard to treatment, it is not certain that we can do much after the suture lines at the base have become prematurely ossified. He has seen two cases in which the sutures of the vault became prematurely ossified which were relieved, temporarily at least, by linear craniectomy along the line of the sutures. The mechanical opening of the suture line permitted the normal expansion of the brain and relieved compression. He is extremely doubtful, however, whether this procedure is indicated in this particular case.

DR. BENJAMIN LIPSHUTZ said that in the interpretation of this ventriculogram the possibility of a large cavity of septum pellucidum suggests itself. The septum pellucidum is usually present as a thin, vertically placed partition which separates the anterior part of the two lateral ventricles from each other. It consists normally of two lamina enclosing a narrow median cavity known as the fifth ventricle (cavum septi pellucidi). Morphologically and embryologically it has no direct relation to the lateral ventricles. In approximately one in two hundred brains observed in neuro-anatomical laboratories of Jefferson Medical College, a very large cavity of septum pellucidum is encountered.

As the cavity of septum pellucidum enlarges, it causes an attenuation and thinning of its lateral walls, and in three instances an actual dehiscence was effected, thus establishing a direct communication between the cavity of septum pellucidum and the lateral ventricles. The enlargement of the cavity

of septum pellucidum may take place at expense of lateral ventricles. The position of this shadow is directly in median line and is in same plane as the lateral ventricles. In those instances where the cavity of septum pellucidum was very large, the roof of the third ventricle is greatly depressed.

OBSTETRICAL PARALYSIS

DR. PAUL N. JEPSON, by invitation, read a paper with the above title for which see page 724.

DR. A. BRUCE GILL remarked that for the past several years he had had occasion to do a good deal of work in the anthracite coal region, and has found the condition quite prevalent there. The slighter cases recover function and all that is required in them is to prevent deformity. One does that by putting the arm in the position Doctor Jepson had described. After the deformity has become a permanent one, possibly it is best to do osteotomy accompanied by tenotomy. As regards operations upon the brachial plexus, there is considerable difference of opinion. There are few men who practise this routinely and the results rarely justify it.

DR. ASTLEY P. C. ASHHURST said that some years ago when the controversy between Dr. T. Turner Thomas and the proponents of the neurogenic theory was at its height, he was invited to accompany Doctor Thomas to a neighboring city to see one of these brachial plexus operations. They saw it done and Doctor Ashhurst remarked that if anything could be more barbarous, he had never seen it. He later learned that the result was unfavorable but the surgeon at the same time referred to many cases in which the procedure had been highly successful.

DR. THOMAS A. SHALLOW said that he does not think the operation upon the brachial plexus is a serious or difficult one and believes the results in adults are extremely satisfactory. He added that he had eight cases to show which have almost complete return of function.

MORTALITY FROM APPENDICITIS

DR. THOMAS J. RYAN, by invitation, read a paper with the above title for which see page 714.

DR. JOHN O. BOWER, by invitation, said that surgeons are most interested naturally in their own mortality. To this end the patients that come directly under the supervision of the individual are given the best he can give. He wished for a moment to speak of the importance of hospital mortality. The mass mortality of the hospital—how many go in with appendices and how many go out—this is important because hospitals as well as individuals have reputations. The figures he wished to give represent the analysis of over a thousand clinical records of patients who had appendicitis. All but a few were operated upon. The analysis of the charts was made by one person assisted by another. The following is a brief summary of the findings:

The factors that influence mortality in appendicitis can be divided into two periods—before and after the patient enters the hospital.

The two factors influencing mortality before the patients enter the hospital are delay and laxatives. At one hospital, where 750 patients were oper-

ated upon, the average time between onset of appendicitis and operation of those who lived was 69 hours; for those who died 151. At another hospital where 252 clinical records were analyzed the average time between onset of appendicitis and operation of those who lived was 90.4 and those who died 157.7 hours; of the 750, 45 per cent. had perforated; of the 252, 46.8 per cent. of the 750, 337 had perforated and 310 or 92.3 per cent. had been given laxatives; of the 252, 118 had perforated and 103 or 87.2 per cent. had been given laxatives; 21 per cent. of the 45 per cent. were cases of general peritonitis. Of the one thousand cases there were 87 deaths—70 per cent. of these had general peritonitis; 93 per cent. or 65 of these had been given laxatives before entering the hospital. Now this is not the surgeon's problem, this is a problem that demands publicity.

In Philadelphia, fortunately, a campaign, sponsored by the Philadelphia County Medical Society, the Department of Public Health and the Philadelphia Association of Retail Druggists, has been instituted to combat this abuse.

The problem that belongs to the surgeon is the problem of the management of general peritonitis. General peritonitis is still responsible for about 78 per cent. of our mortality and the mortality of general peritonitis still varies from 15 to 40 per cent. depending on who operated and when and how. An accurate analysis of the charts of the two hospitals shows that the greatest mortality was at the hands of surgeons who operated immediately on all cases, who did not strictly Ochsnerize his patients post-operatively, who removed appendices in the presence of a spreading peritonitis and who practised the early removal of drains.

Dr. Edward Crossan said that a great deal depends on the attitude of the surgeon in cases of acute appendicitis; while not wishing to minimize the importance of education of the public regarding the danger of the indiscriminate use of cathartics in abdominal pain, he thought that there was something to be said regarding the education of the surgeon. For example, it is a too common practice for some surgeons to allow a case of acute appendicitis to "ride" until it is convenient for the surgeon to operate. This practice is to be condemned. He believes also that there is a tendency on the part of some to rely on drainage alone, leaving the appendix behind. Of course this is sometimes necessary but not as a rule. He attributed the low mortality, 3.5 per cent., in Doctor Ashhurst's service to prompt and adequate surgery. He also wished to ask Doctor Ryan how many cases in his series were not operated upon because he felt they were too sick for any sort of operation.

Dr. Hubley R. Owen said that he believed strongly in the necessity for education of the public rather than of the surgeon. In the Philadelphia General Hospital, Doctor Owen's statistics showed a lower mortality than those of any of his colleagues. This was not to be interpreted as meaning that he operated more skillfully but was due to the fact that nearly all of his patients were police or firemen and that these men had been repeatedly cautioned against and were well aware of the danger of taking castor oil, salts and other cathartics for the relief of abdominal pain. When a policeman

or fireman was reported as sick with abdominal pain, a member of the staff was at once sent to see him and if he was found to have appendicitis, he was promptly hospitalized and operated upon.

The speaker also called attention to the pernicious practice of retail druggists' prescribing over the counter for abdominal pain. Such prescriptions were almost invariably for castor oil or citrate of magnesia and many an appendix had perforated as a result of this sort of thing. When Doctor Owen took the matter up with the president of the Philadelphia Retail Druggists' Association, and his remarks were quoted in a pharmaceutical journal he was severely criticized by many druggists who regarded this as an invasion of one of their prerogatives. The speaker added, however, that the Philadelphia druggists had shown every desire to coöperate in the matter.

DR. ASTLEY P. C. ASHHURST reported his recent individual experience with operations for complicated cases of appendicitis (as a sequel to the Table published in the ANNALS OF SURGERY, 1927, vol. lxxxv, p. 89):

The only death occurred in a man, forty-five years of age, who was operated on May 25, 1929, the day of admission, for a primary appendicular abscess. Ten days later (June 4, 1929) he was re-operated on for continuing subacute intestinal obstruction, unrelieved by non-operative treatment. He was much improved by this second operation for three days (until June 7, 1929). On June eighth he seemed moribund, and Doctor Ashhurst thought it hopeless to attempt another operation. However, Doctor Crossan was more optimistic, and with Doctor Ashhurst's approval, reopened the abdomen, but found so many kinks involving the entire small bowel, without any strangulation or acute kinking, that nothing could be done; and death occurred about seven hours after this, the third, operation. Both this and the second operation were done under spinal anæsthesia.

Among this recent short series of twenty-eight cases, there were some very ill patients: a *fœcal fistula* developed in the wound in four cases; in all it closed spontaneously in a few days, and all the patients recovered. In fact, this service has come to recognize a fæcal fistula as a favorable event in very sick patients, but has not yet attempted a formal cæcostomy at the time of the primary operation.

One case of *gastric tetany* was encountered in this series: A man forty-one years of age was admitted August 23, 1926, suffering for eight days before admission with his second attack of appendicitis. An abscess was drained and the appendix removed on the day of admission. The night following the operation the ward surgeon administered a hypodermic injection of *eserine*, for tympany. This caused in a few hours symptoms of intestinal obstruction, which were relieved by lavage of the stomach and morphine. In a few days the patient developed severe diarrhœa. Eight days after operation he developed acute dilatation of the stomach, with tetany. This was relieved by gastric lavage, hypertonic (15 per cent.) sodium chloride solution intravenously, and an inlying duodenal tube, which was in place for thirty-six hours. After this, recovery was uneventful.

Doctor Ashhurst remarked that eserine had been given to this patient

without his knowledge or approval; he regarded it as a dangerous remedy except for simple atonic dilatation of the intestines. In post-operative cases where there may be peritoneal adhesions, he thinks eserine peculiarly dangerous: it rouses so much peristalsis that obstruction scarcely can be avoided. Doctor Ashhurst reminded the Fellows of the Academy of the previous report from his service of a case of gastric tetany, by Dr. Henri De Bayle, now of Nicaragua (ANNALS OF SURGERY, 1925, vol. lxxxi, pp. 622-630).

A third case of special interest was that of a man thirty-one years of age, who had an *incarcerated right inguinal hernia*, complicated by an *appendicular abscess* in the recto-vesical pouch.

Doctor Ashhurst added that it did not seem fair to publish, without qualification, what may be regarded as a selected series of complicated cases of appendicitis, because, as noted in the previous report (1926) on the mortality of appendicitis, he does not himself do most of the emergency operations. He has, therefore, tabulated, below, all the complicated cases of appendicitis admitted to his service (1926-1929), in which the operations have been done by other members of his staff: Doctor Boykin, Doctor Crossan, Doctor Klopp, and in some cases by the Chief Resident Physician for the time being. He desired it to be understood that this larger series is more truly representative of the service of a large hospital, than is his own smaller series. For instance, if the three patients, who were so ill on admission as to make operation not justifiable, were transferred to Doctor Ashhurst's individual list, the general mortality in that series would be above 14 per cent. Yet when these three patients were seen the day after admission by himself, postponement of the operation had been approved by him.

TABLE I

Operations for complicated cases of appendicitis

(October 1, 1926 to January 1, 1930)

(Doctor Ashhurst's individual operations)

	Cases	Operations	Deaths	Mortality
Operation on Admission				
Primary Abscess	12	12	1	8.5%
Gangrene	9	9	0	...
Diffuse Peritonitis	6	6	0	
Total	27	27	1	3.7%
Delayed Operation				
Died without operation	0	0	0	...
Abscess drained, appendix not removed	0	0	0	...
Abscess drained and appendix removed	1	1	0	...
Total	1	1	0	...
Grand Total	28	28	1	3.5%

TABLE II

Operations for complicated cases of appendicitis by Doctor Ashhurst's staff, at the Episcopal Hospital

(October 1, 1926 to January 1, 1930)

	Cases	Operations	Deaths	Mortality
Operation on Admission				
Primary Abscess	19	19	0	...
Gangrene	14	14	2	14 %
Diffuse Peritonitis	26	26	4	15 %
Total	59	59	6	10 %
Delayed Operation				
Died without operation	3	0	3	100 %
Abscess drained, appendix not removed	2	2	2	100 %
Abscess drained and appendix removed	0	0	0	...
Total	5	2	5	100 %
Grand Total	64	61	11	17 %

TABLE III

All operations for complicated cases of appendicitis in Doctor Ashhurst's service at the Episcopal Hospital

(October 1, 1926 to January 1, 1930)

	Cases	Operations	Deaths	Mortality
Operation on Admission				
Primary Abscess	31	31	1	3.2%
Gangrene	23	23	2	8.7%
Diffuse Peritonitis	32	32	4	12 %
Total	86	86	7	8.1%
Delayed Operation				
Died without operation	3	0	3	100 %
Abscess drained, appendix not removed	2	2	2	100 %
Abscess drained and appendix removed	1	1	0	...
Total	6	3	5	83 %
Grand Total	92	89	12	13 %

DR. THOMAS RYAN said that he regretted that the immediate mortality had been made a matter of discussion. It was not his intention to go into this phase of the question at all. With Doctor Ashhurst, he agrees that it is not of any importance except in the cases requiring drainage. The point that he wished to make was that mortality from appendicitis is on a continuous and progressive increase. In 1895 with a mortality of 20 per cent., fewer people died from the disease than in 1922 with a mortality of 13 per cent. None of the speaker's cases died without operation.