EXPERIMENT.—Rabbit 9 received 12 c.cm. of Alcoholic Extract in Five Injections during a Period extending over 35 Days.

	Serum 9.	Physiological Salt Solution	Bile.	Biliary H. No. 2.	Red Blood Corpuscle.	Result.
Tube 1	5	35	—	—	2	co
" 2	—	35	—	5	2	††
" 3	5	30	—	5	2	††
" 4	—	30	—	10	2	†††
" 5	15	25	—	5	2	††
" 6	—	35	5	—	2	††††
" 7	—	30	10	—	2	††††
" 8	5	30	5	—	2	††††
" 9	10	25	5	—	2	††††

Although the alcoholic extract, therefore, is haemolytic, its injection into rabbits confers no haemolytic or haemosozic properties on the serum of animals so treated.

Further other experiments showed that the haemosozic precipitate from bile did not neutralize the biliary haemolysin No. 2, and the serum of an animal injected with these haemolysins had no effect on a biliary haemolytic serum.

CONCLUSIONS.

1. Bile contains at least two haemolysins or groups of haemolysins: (1) Biliary haemolysin No. 1 (insoluble in alcohol), which produces a haemosozic serum when injected into rabbits; and (2) biliary haemolysin No. 2, which produces no haemosozic serum when injected.
2. Bile contains a haemosozic precipitate which, when injected into rabbits, produces a haemolytic serum.
3. The haemosozic precipitate added to bile never prevents completely the haemolysis produced by bile.
4. The haemosozic precipitate neutralizes the haemolysin insoluble in alcohol (haemolysin No. 1), but not the haemolysins soluble in alcohol (haemolysin No. 2).
5. The haemosozic precipitate prevents the haemolytic action of a serum produced by the injection of bile.

REMARKS.

Since the chemical composition of bile varies greatly even in the same animal, probably therefore the amount of haemolysin and haemosozin in it varies also. We have seen that as biliary haemolysins and haemosozins have very different physiological effects, the injection of bile which contains both necessarily produces very complex changes in the serum of an animal—changes all the more complex as the chemical composition of bile varies considerably. A serum of an animal injected with bile may have the most varied effect on the red corpuscles; and, as we have seen, although as a rule such a serum is haemosozic, sometimes it is haemolytic, sometimes both haemosozic and haemolytic, and sometimes neither.

It appears to us that these experiments throw light on some of the facts which have been observed concerning the serums of animals injected with lower micro-organisms or their products. A culture, whether filtered or unfiltered, whether heated or not, most probably contains, like bile, substances antagonistic to one another; in consequence, the serum of an animal injected with such complex substances may contain several new substances, some of which may inhibit or predispose to infection, some may neutralize and some increase the effects of bacterial poisons, some, again, may have no appreciable specific action whatever. Such a hypothesis may account for the impossibility of increasing the antitoxic power of certain specific serums, or of obtaining a serum neutralizing *in vivo* more than the minimum fatal dose of certain pathogenic bacteria.

REFERENCES.

- ¹ BRITISH MEDICAL JOURNAL, July 18th, 1903, p. 130. ² Ibid., 1904, i, p. 658. ³ Journal of Pathology and Bacteriology, March, 1904.

A CASE OF EMPYEMA OF THE GALL BLADDER, WITH UNUSUAL SYMPTOMS.

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THE following case is, I think, worth recording, owing to the great difficulty in diagnosis resulting from the unusual physical signs which were present.

In most textbooks it is definitely stated that the dullness

caused by a tumour of the gall bladder is continuous with the liver dullness, and that the intestine is never situated in front of an enlarged gall bladder.

In this case there was an empyema of the gall bladder, the result of the obstruction of the commencement of the cystic duct by a calculus. Owing to the fact that the liver was enlarged, so that the anterior edge, which was very thin, reached almost to the level of the umbilicus, though a dull note on percussion was only obtained for $1\frac{1}{2}$ in. below the costal margin, the tumour was situated below the level of the umbilicus. In addition to this, the transverse colon was adherent to the under surface of the liver between its anterior sharp margin and the fundus of the gall bladder, causing a resonant note to be obtained on percussion between the hepatic dullness above and the gall bladder dullness below. Moynihan, in his book, says: "In one case I have found the colon to be adherent to the edge of the liver above the gall bladder, so that on inflation the swelling was recognized as being below the colon, and made less easily palpable. Lawson Tait and Lücke have described cases in which the small intestine was adherent in this position."

As a result of these two factors—low position of the tumour and resonance above it—a wrong diagnosis of appendicitis was made.

The following is the history of the case:

Mrs. B., aged 40, was admitted to the Royal City of Dublin Hospital on Friday, June 9th, 1905. The previous Monday she was suddenly seized with pain in the right side; she vomited everything she took, and her temperature on two occasions during the week was 100° and 101° respectively. Her bowels were confined until Thursday, when they were moved as the result of purgatives and enemata; she had been kept more or less under the influence of opiates during the week owing to the severe pain which was situated in McBurney's spot. On admission her pulse was 60 and her temperature 99° . There was a large oval swelling situated in the right side of the abdomen just below the level of the umbilicus and close to the outer border of the rectus: the liver dullness extended for $1\frac{1}{2}$ in. below the costal margin, but there was a broad band of resonance between this and the tumour; the tumour itself was dull on gentle percussion, but resonant on deep percussion. Though there was no cutaneous hyperaesthesia, the patient complained of so much pain and tenderness over the tumour that it was very difficult to make a thorough examination. The abdomen was not distended, but the muscles were rigid over the tumour, though there was no general abdominal rigidity. The patient was ordered an enema, and hot turpentine stupes were applied to the abdomen; all food was withheld except small quantities of milk and soda water. The bowels were well moved and the patient was better in the evening, the temperature 100° and the pulse 68, and the pain was less severe.

In the morning the patient appeared worse, the temperature 100.8° and the pulse 68, and the respirations 30 to the minute; the abdomen was moving freely with respiration, which did not cause any movement of the tumour; the pain was very severe and paroxysmal, entirely localized to the region of the tumour; there had been no vomiting since admission. A leucocyte count was made, with the following result: Total leucocytes, 22,666 per c.mm.; neutrophils, 82 per cent.; eosinophiles, 1 per cent.; lymphocytes, 9 per cent.; hyaline, 8 per cent. There was a history of an attack of pain (not so severe as this one) lasting some days eleven years ago, accompanied by jaundice, and disappearing after the passage of gall stones; this, however, was not elicited till after the operation. During the present attack there was at no time any jaundice.

A diagnosis of appendicitis with abscess formation was made, and immediate operation was decided on.

The abdomen was opened over the tumour by an oblique incision passing through the muscles and the outer border of the sheath of the right rectus muscle. The parietal peritoneum was not adherent to the tumour, which was covered by the transverse mesocolon. The caecum and appendix were normal. The anterior edge of the liver was found projecting down to the level of the umbilicus, and underneath it a large tense tumour, covered by the transverse mesocolon, and with the transverse colon adherent to the under surface of the liver, in front of it; the colon and mesocolon, with a layer of lymph, were peeled off the under surface of the liver and the tumour; while doing this some thick pus welled up from the depths of the wound, the intestines were packed off with gauze wipes, and about 4 oz. of pus and mucus were swabbed up. A perforation was then found in the neck of the gall bladder, which was temporarily closed by forceps. The gall bladder was then separated from the under surface of the liver and drawn out of the wound, the neck of the gall bladder and cystic duct were freed, ligated, and divided, some strips of gauze were passed down to the bottom of the wound and the abdominal incision closed except for 1 in. in its upper part, and the patient was sent back to bed.

Everything went well for the first week; the temperature came down to normal on the third day, the gauze was removed on the fourth day, and the stitches were taken out on the ninth day, the wound being perfectly healed, except where the gauze drain had been, and there being scarcely any discharge. That evening the patient's temperature went up to 100° and she complained of cramps in her legs, followed by great pain and oppression of the chest, a great sinking feeling, and a cold perspiration all over the body; the pulse was very weak and difficult to count, about 126. She was given a hypodermic of strychnine

When I saw the patient, about one hour after the attack commenced, she was still complaining of great pain and oppression of the chest, the abdomen was somewhat distended and tympanitic, but was not tender, and moved freely with respiration, which was rapid, about 36 to the minute. The area of cardiac dullness and the heart sounds were normal. The patient was given a turpentine enema, which brought away a lot of faeces and flatus, and gave some relief; the patient had several slighter attacks during the night, but was somewhat relieved by hot stupes over the chest and a second turpentine enema, which got rid of more faeces and flatus; this in spite of the fact that the patient's bowels had been moving regularly every day since the operation. In the morning the pulse was 130, and still weak and difficult to count; a double friction sound could be heard over the apex of the heart; the cardiac dullness was normal. The patient was given a hypodermic of morphine which greatly relieved the pain and oppression, and was ordered a mixture containing salicylate of soda. That evening the patient was better, but a very loud creaking double friction sound could be heard over the whole of the front of the left side of the chest, and a slight thrill could be felt on palpation. The next morning the patient was better and both thrill and friction sound had entirely disappeared. The temperature remained somewhat irregular, rising on one occasion to 100.8°.

On June 23rd the patient complained of pain and cramp in the right leg, which became swollen: this was probably due to a thrombosis of the deeper veins of the leg, the calf of the leg being very tender and the tenderness extending up along the line of the superficial femoral vein in Hunter's canal, although nothing definite could be made out on palpation. A small collection of pus was found in the upper part of the wound and was let out. From this on the patient made a rapid recovery, the temperature becoming normal on June 30th, and the patient being allowed up on July 6th, and leaving hospital with the wound perfectly healed on July 15th.

On examining the gall bladder after removal, it was found to be enlarged to a capacity of 4 oz. The wall was nearly ½ cm. thick and very soft and friable. There was a round perforation 1 cm. in diameter in the neck, which had been closed by a layer of lymph and the adherent transverse mesocolon, and through which the leakage had occurred when these were peeled off. There was a soft round stone the size of a cherry-stone in the commencement of the cystic duct, the wall at this spot being ulcerated nearly through its entire thickness.

It is worth mentioning that the fluid in the fundus of the gall bladder was a clear, thick mucus, but that in the neck of the gall bladder was a thick, odourless pus of a light greenish colour. Both stab and streak cultures in agar-agar were made of this pus during the operation. The infection proved to be one of the bacillus coli communis.

REFERENCE.

¹ Gall Stones and their Surgical Treatment, p. 135.

• SEVENTY-THIRD ANNUAL MEETING
OF THE
British Medical Association.

Held at Leicester, July 24th, 25th, 26th, 27th, and 28th, 1905.

PROCEEDINGS OF SECTIONS.

SECTION OF DENTAL SURGERY.

MORTON SMALE, M.R.C.S., L.D.S., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE recommendation from the head quarters of the Association that Presidential Addresses at Sections are not required has my hearty approval. I do not, therefore, intend to waste the time of the Section or your patience with any address as your President.

Our programme is very full, the subject for discussion very important, and the time at our disposal so short, that it would amount to impertinence to direct your attention away from the subject we are met to discuss.

May I be pardoned for calling attention to a case recently under my care that is not altogether foreign to our discussion. The patient, a lady between 25 and 30 years of age, who had been under my care for some time without mentioning that she had suffered severely from neuralgia, told me at a recent interview that for some years she had periodically suffered from neuralgia of a severe type, and that she had taken large quantities of antineuralgic drugs for the purpose of obtaining relief, prescribed by medical men at different times.

The pain was severe, and radiated about the region of the ear; so much so, indeed, that she had feared aural trouble, and had consulted an aural surgeon about it.

On carefully examining the mouth I found the third molar absent, there was not then and there never had been any inflammatory trouble in the region, there was no history of

the removal of the tooth or of its eruption. It seemed possible, therefore, that that tooth might be the cause of the trouble, and that the pain was due to some efforts on the part of the tooth to erupt, or to some pressure on the tooth in front of it leading to absorption of its root, or to some pathological condition that might end in the two teeth being joined together by the formation of pathological cementation.

A radiograph was taken, and is now shown, in which you will see that the wisdom tooth is deeply imbedded and wedged between the second molar and the ascending ramus of the mandible in such a position that it was impossible for it to reach the surface. It was decided to remove the second molar at the next attack, but up to this date one has not occurred, although several months have elapsed, which makes me think the two teeth are now cemented together.

With the object of verifying Dr. Head's very careful investigations about the region of pain in dental and other lesions, I have asked the patient to mark on a sketch of a face the exact region of the pain, which I now show you. In returning the drawing, she says: "I have marked a cross on the drawing

where the pain was worst; from there it went by the dotted line to my ear. The whole of the jaw on that side used to get tender, but I do not remember any pain in the tongue." Mr. Henry Moon, in Bryant's *Surgery*, was the first to endeavour to locate the lesion of the teeth by the seat of the referred pain. Dr. Head has carefully supplemented this by his very excellent work on the same subject. He points out that, to use his own words, "each organ in the head stands in relation with one or more areas on the surface. To these areas pain is referred, and over them the skin may become tender when the normal condition of that organ is disturbed." Thus, given a knowledge of the distribution of the tender areas, it is easy to determine to what area the referred pain must have belonged, and thus indirectly to arrive at the peccant tooth. We must all know from experience how valuable an aid to diagnosis this may be when our patients are unable to name the tooth which has given rise to both local and referred pain, and there must be few of us who have not drilled into a sound tooth because of the local symptoms, ignoring the referred ones, which probably would have directed us to the right tooth.

A DISCUSSION
ON TOOTHACHE, NEURALGIA, AND REMOTE
AFFECTIONS OF DENTAL ORIGIN.

I.—J. S. RISIEN RUSSELL, M.D., F.R.C.P.,

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I HIGHLY appreciate the honour you have done me in entrusting the opening of so important a discussion to my care, and I thank you most cordially for the confidence which this implies. I can assure you that if I fall short of your expectations by not embracing enough in what I have to say, it is not because I have devoted too little time and care in the preparation of my remarks, but because I feel that the subject is so large that it is impossible to deal with it at all comprehensively in the time at my disposal.

This being the case, I have thought it best to limit myself to one aspect of the subject, and to endeavour to bring before