of gastric haemorrhage in which no trace of an ulcer, chronic or acute, could be found; and although, before the presence of a minute acute ulcer can be denied, much care must be taken, it hardly seems likely that all these observers are wrong. I have seen one fatal case within the last four years. That was a woman who had been in the hospital several times for haematemesis. After death I made a careful examination of the stomach, and neither I nor any one else could see any evidence of an ulcer. Dr. Wilberforce Smith has kindly sent me notes of a similar case, in which he and two other doctors made a most careful examination of the stomach after death, and no ulcer or source of the bleeding, which during life was very severe, could be found. I must, however, admit that in neither case was the stomach photographed or examined microscopically. It is allowed that acute ulcers may form the initial stage of chronic ulcers; but if all the cases which some call gastrostaxis were examples of acute ulcers, we should hardly expect that chronic ulcers would be, as they are, judging by *post-mortem* experiences, equally common in men and women, for the condition described as gastrostaxis is far commoner in women.

From this evidence it seems that some at least of these cases of pain, vomiting, and haematemesis in young women are due to oozing of blood from the stomach, and may therefore be called gastrostaxis. We do not know the cause of it any more than we know the cause of epistaxis in young boys or menstruation in women. There is reason for believing that a similar oozing may take place from the vessels of the kidney and give rise to blood in the urine; probably some of the cases of suspected stone in the kidney in which none is found are instances of this. Several cases have been recorded lately of bleeding from the stomach in association with disease of the appendix, and although this is difficult to explain it is easier to imagine that some toxin from the diseased appendix, acting as an endothelial poison, would cause gastrostaxis rather than gastric ulcer, for we know that in toxæmia associated with disease of the liver (apart from portal congestion) haematemesis may occur without any ulceration of the stomach and rupture of minute gastric vessels is not rare in acute infective process, for of 172 cases of gastric ecchymoses found in the *post-mortem* room at Guy's Hospital in 68 the cause of death was an acute infective process.

My justification for this short note is that it may interest your readers, as Dr. Bolton has given reasons for doubting whether the bleeding was due to gastrostaxis, to supplement him by giving those in favour of that view.

REFERENCES.

¹ C. Bolton, *Clin. Journ.*, March 31st, 1909, p. 392. ² *The General Practitioner*, December 8th, 1906. ³ W. P. Herringham, *St. Bartholomew's Hospital Reports*, vol. xlv. ⁴ F. Eve, *BRITISH MEDICAL JOURNAL*, May 7th, 1910. ⁵ Moynihan, *ibid.*, January 29th, 1910. ⁶ Hale White, *Lancet*, November 3rd, 1906.

THE first of a special course of six demonstrations on the surgery of the nervous system will be given by Mr. Percy Sargent at the National Hospital for the Paralyzed and Epileptic, Queen Square, W.C., to-day (June 3rd), at 5 p.m. The course will be continued on June 8th, 10th, 15th, 17th, and 22nd, at the same hour.

THE Society of Medical Phonographers offers a prize of one guinea for competition amongst medical students for the best answers to three questions in medicine and surgery which are intended to appear in the August, October, and December issues of *The Phonographic Record of Clinical Teaching and Medical Science* (the organ of the society). The sole qualifications for entry are membership of the Society of Medical Phonographers and ability to read shorthand (Pitman's system). Answers to the questions may be sent in in ordinary writing, type-writing, or shorthand, at the option of the candidates. The competition will take place if not less than four student members enter for it. Entries must be received on or before July 7th by the honorary secretary of the society, Dr. A. Hill Joseph, 10, Cantelupe Road, Bexhill-on-Sea, who will be glad to receive applications for membership. There will be no entrance fee. Student members of the Society of Medical Phonographers pay a subscription of 5s. per annum, in return for which they receive the periodical and other literature issued by the society. Members of the profession pay a subscription of 7s. 6d. per annum. It is proposed later to institute another competition in anatomy and physiology.

THE DIFFERENTIAL CUTANEOUS REACTION IN TUBERCULOUS DISEASES.

BY

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IN October, 1908, Dr. Ladislaus Detre, of Budapest, speaking at the Washington Congress on Tuberculosis, proposed a modification of von Pirquet's cutaneous reaction. He suggested that by applying bovine and human tuberculin simultaneously it would be possible not only to determine the presence or absence of tuberculosis but also to determine whether the bacillus present was of the human or bovine variety.

We have been using this method for about eighteen months, and have now on record the results in several hundred cases. We think it may be of interest to record the first 250 consecutive cases, and to consider what conclusions may reasonably be drawn from the results.

The technique is simple. A 25 per cent. solution of old tuberculin (as prepared by Meister, Lucius, and Brünig) is made up with a diluent consisting of one part of 1 in 20 carbolic acid glycerine and two parts of normal saline solution. The solutions are kept in three pipette stoppered bottles containing respectively the diluent for control, bovine, and human tuberculin.

On the right forearm is placed a drop of the diluent, and at some distance a drop of human tuberculin, and the skin is scarified through each drop with a straight Hagedorn needle. The solutions are then rubbed in with the needle. The left arm is similarly treated with bovine tuberculin. A different needle, which is kept in alcohol, is used for each solution.

If a reaction occur, a small red papule appears in twenty-four hours, increases in size for three or four days, and then gradually fades in about a week, leaving in some cases a slight desquamation or pigmentation. In a few cases the papule becomes vesicular, and in still fewer the reaction is delayed until the fifth or sixth day. The control should show no reaction on the third day.

In analysing the results of the first 250 cases it must be borne in mind that in every case there was some reason to suspect the presence of tuberculosis. Seventy-nine cases were certainly tuberculous, in 42 cases the diagnosis of tuberculosis was highly probable, and in 129 cases there was no evidence of tuberculosis other than the reaction when present.

The accompanying tables (p. 1349) contain an analysis of our results:

1. All cases certainly tuberculous gave one or both reactions, with one exception, namely, a case of tuberculous meningitis in which tubercle bacilli were found in the cerebro-spinal fluid. This patient died.

2. Of cases probably tuberculous, one or both reactions were present more frequently where the probability was greater than where the probability was less.

3. In cases suspected of tuberculosis, where there were no definite diagnostic signs, one or both reactions appeared more frequently after the age of 15 years and most frequently in patients over 45 years of age. It is obvious, however, that the probability of any individual being tuberculous increases with his age.

3. In the pulmonary cases, of those certainly tuberculous 2 gave a bovine reaction, and 22 both reactions. Of those almost certainly tuberculous 2 gave a human reaction, 1 a bovine, and 39 gave both reactions. In these two groups, of 66 patients examined 61 gave both reactions, which in 28 cases were equal, in 17 cases the human, in 16 cases the bovine being greater; 2 gave the human reaction only, and 3 the bovine. In all cases some reaction occurred.

TABLE I.—*Pulmonary Cases.*

	Both Reactions Present.			One Reaction Present.		No Reaction.	Total.
	Human Greater.	Bovine Greater.	Both Equal.	Human.	Bovine.		
Definite physical signs; T.B. present	8	4	10	0	2	0	24
Definite physical signs; no T.B., or not examined ..	9	12	18	2	1	0	42
Doubtful physical signs; no T.B., or not examined ...	6	3	10	1	1	32	53
No physical signs; no T.B., or not examined	7	7	18	2	1	55	90
Totals	30	27	56	5	5	87	209

TABLE II.—*Miscellaneous Cases.*

Disease.	Both Reactions Present.			One Reaction Present.		No Reaction.	Total.
	Human Greater.	Bovine Greater.	Both Equal.	Human.	Bovine.		
Cervical glands enlarged	5	5	5	—	—	1	16
Laryngo-pharyngitis (tuberculous)	—	4	3	—	—	—	7
Ulceration of nose (tuberculous)	—	—	1	—	—	—	1
Tuberculous peritonitis	—	2	2	—	—	—	4
Tuberculous meningitis	—	—	—	—	—	1	1
Tuberculous dactylitis	—	1	—	—	—	—	1
Lupus	1	—	—	—	—	—	1
Spinal caries	—	—	1	—	—	—	1
Heart valvular disease	—	—	3	—	—	2	5
Tonsillitis	—	—	1	—	—	1	2
Anaemia	—	—	—	—	—	1	1
Syphilis	—	—	—	—	—	1	1
Total	6	12	16	—	—	7	41

TABLE III.—*All Cases in Age-groups.*

Age-groups.	Total.	Definitely Tuberculous.		Probably Tuberculous.		No Evidence of Tuberculosis.	
		Posi- tive.	Nega- tive.	Posi- tive.	Nega- tive.	Posi- tive.	Nega- tive.
0-5	15	1	—	3	—	4	7
5-10	93	24	1	12	1	8	47
10-15	38	12	—	8	2	2	14
15-25	43	18	—	7	1	10	7
25-35	27	9	—	6	—	3	9
35-45	20	8	—	1	—	7	4
45 and over ...	14	6	—	—	1	6	1
All ages	250	78	1	37	5	40	89

TABLE IV.—*Percentages giving Positive Reaction in the Three Clinical Groups, arranged according to Age.*

Age-groups.	Definitely Tuberculous.	Probably Tuberculous.	No Evidence of Tuberculosis.
0-5	100	100	36.3
5-10	96	92.3	14.5
10-15	100	80	12.5
15-25	100	87.5	58.8
25-35	100	100	25
35-45	100	100	63.6
45 and over ...	100	—	85.7
All ages	98.7	88.1	31

TABLE V.—*Percentages giving Positive Reaction in Different Age-groups.*

Age-groups.	Total.	Positive Reaction.
0-5	15	53.3 per cent.
5-10	93	47.3 ..
10-15	38	57.8 ..
15-25	43	81.3 ..
25-35	27	66.3 ..
35-45	20	80.0 ..
45 and over ...	14	78.5 ..
All ages	250	62.0 ..

General Conclusions.

This reaction is certainly capable of being applied cheaply, safely, and easily by any medical man, and in our opinion, if properly interpreted, it is of great value. Broadly speaking, our interpretation of our results is as follows:

(a) Any patient giving either or both reactions is certainly tuberculous, but the reaction gives no indication of the site or activity of the tuberculous lesion.

(b) Any patient giving no reaction is certainly not tuberculous, except in exceptional cases of advanced and moribund tuberculosis.

(c) In pulmonary phthisis both reactions are usually present. This seems to us to indicate either that the human and bovine bacilli are very closely allied, or, less probably, that both bacilli are usually present. The practical deduction we have drawn is that it is safer to exhibit mixed human and bovine tuberculin in all cases treated with tuberculin. If either is of any value it

will do its work, and the other will, at any rate, do no harm.

The number of cases we give is, we think, sufficient to justify, at any rate, a provisional opinion on the subject, and we have no hesitation in using this reaction ourselves, and recommending it to the profession as a simple and harmless method of obtaining accurate information, which we have found to be of great value in many obscure cases.

A FURTHER CONTRIBUTION ON THE STERILIZATION OF THE SKIN OF OPERATION AREAS.*

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My first communication on the sterilization of the skin of operation areas¹ by iodine was based on an experience of 57 cases. A further experience of 291 cases has increased my belief in the method and enabled me to improve my technique.

In the accompanying table I have added my cases together, so that I can submit a complete list representing the operations I have performed during the last ten months which were suitable for such a preparation. The cases have

No. of Cases.	Operation.	Result.	Remarks.
5	Abscess	S.	2 healed per primam.
1	Amputation: hip	S.	Was suppurating.
3	" thigh	2 P., 1 S.	1 was gangrenous.
1	" foot	P.	
1	" hand	P.	
6	" fingers	P.	
4	" toes	P.	
14	" breast	P.	
3	Anthrax	S.	Malignant pustules.
9	Appendix: quiet	P.	
8	" suppurating	S.	
3	Appendicostomy	P.	
1	Castration	P.	This healed per primam, in spite of secondary haemorrhage necessitating re-opening the wound.
6	Circumcision	S.	
2	Colostomy	S.	
4	Colotomy	S.	
3	Empyema	S.	
2	Epithelioma, lip and face	1 S., 1 P.	
6	Fractures, wired	4 P., 1 S.	1 died (tetanus); 1 compound, some suppuration.
7	Glands in neck	6 P., 1 S.	1 was suppurating.
11	Goitre	P.	1 malignant, died in 48 hours.
1	Harelip	P.	
15	Hernia: radical cure	P.	4 femoral, treated with metal staples.
5	" strangulated	4 P., 1 S.	1 was suppurating.
4	Hydrocele: radical cure	P.	
1	Ingrowing toenail	S.	Was suppurating.
6	Knee-joint operation	P.	
	Laminectomy	P.	Died within 48 hours
12	Laparotomy: various	11 P.	1 after watery solution healed per primam; abscess followed.
1	" extrauterine fetation	P.	
3	" ovarian	P.	
	" uterine fibroid	P.	
6	" ventrifixation of uterus	P.	
1	" nephropexy	P.	

*Read before the Kidderminster Medical Society.

No. of Cases.	Operation.	Result.	Remarks.
1	Laparotomy: suture bladder	S.	Was suppurating; died.
7	" gastro-enterostomy	P.	
1	" perforated gastric ulcer	S.	Died within 24 hours.
1	" gall stones	S.	
1	" enterectomy	S.	Died within 48 hours.
1	" intestinal anastomosis	S.	Died within 48 hours.
6	Mastoid operation	S.	
1	Nerve suture	S.	It had been suppurating; nerve held.
10	Naevus	P.	
3	Osteotomy	P.	
6	Paracentesis thoracis	P.	
3	Plastic operations	P.	
2	Ruptured perineum	S.	Healed per primam.
19	Small tumours; bursa, etc.	18 P.	One suppurated.
5	Sinus exploration	S.	All suppurating.
7	Tenotomy	P.	
1	Tendon suture	P.	
1	Tracheotomy	S.	
2	Trephining	P.	
36	Varicose veins	P.	
1	Varicocele	P.	
272	It has also been used in the following cases:		
23	Casualty wounds	S.	In most cases a perfect result; 1 gangrene, 1 tetanus.
27	Injection of antitoxin	P.	
25	Skin grafting	S.	
1	Vaccination	P.	Did not take!
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N.B.—In column three: P = perfect; S = satisfactory.

not been selected; they represent various classes of the community and ages varying from a few days to 84 years.

Of the 272 operations some were performed for conditions already septic, but from my experience of similar cases prepared by the former method I have no hesitation in saying that their after-progress was more satisfactory. They are marked as "satisfactory" in the table. Some have healed per primam and are marked "perfect."

I have had only three failures among the clean cases:

CASE I.—The first was an old man upon whom I performed an exploratory laparotomy. He was found to be suffering from malignant disease of the liver, and the abdominal wound was closed. When dressed on the eighth day, it was perfectly healed, and the stitches were removed. Five days later a collection of pus (about two ounces) was found beneath the cicatrix. This case was prepared with a watery solution of iodine, which I was then experimenting with. It is possible the failure was due to that, or there may have been no failure at all, and the abscess may have been due to infection from another source. This appears probable, because the skin wound healed perfectly, and there was no trace of redness about any of the sutures.

CASE II.—The second was the case of a small boy with a mole on his cheek, near the angle of the mouth, which I excised. It is difficult to apply a closed dressing in this situation, and it is still more difficult to keep it dry, in an adult; in a boy it is still more impossible, and I feel satisfied that this was the cause of infection.

CASE III.—The third case is more difficult to account for. The patient was a man, aged 32, whose leg was fractured at football on March 28th by indirect violence. The left tibia was broken, obliquely, and an x-ray photograph showed about $\frac{1}{2}$ in. separation between the fragments.

On April 2nd I made an incision and fixed the ends of the bone with a screw and silver-wire suture. The operation was quite simple, and was performed in the usual way.

On the fourth day the temperature was raised, but when the wound was dressed it appeared to be all right. By the sixth day there was a decided red blush, which spread with alarming rapidity, and within twenty-four hours reached his groin. He was treated with Bier's congestion and injections of polyvalent serum (B. and W.). On the tenth day he developed signs of tetanus, which increased; he had constant convulsions, and