this direction. The whole family practically seems to be subject to the disease. The grandmothers on both sides of the family had marked cardiac disease, although it is not known whether it was actual tachycardia or not. The father was delicate as a young man, and he died from heart failure following influenza. One of the father's sisters suffered terribly from severe heart attacks, probably tachycardia, and she died from heart affection. The mother was threatened with pulmonary trouble in her youth, but this tendency passed off. She was all her life afflicted with intermittency of pulse, breathlessness, and palpitation. There were six daughters and three sons. The patient's two brothers are alive and both suffer at times from cardiac pain and palpitation, sometimes accompanied by slight dyspnoea. The eldest sister died at 28 years of age from pneumonia; she also suffered from cardiac discomfort with breathlessness. The second sister, who died at the age of 36 years, had splenic disease. She was married but had no children. She developed tachycardia from sea-sickness on a long voyage. The third sister died from peritonitis. In her case there was no apparent heart trouble so far as the patient knows. The fourth sister is still alive and is well but not robust. The fifth sister, who had pronounced heart trouble, died at 46 years of age from heart failure, and for the last three or four months of her life she was very ill suffering from tachycardia accompanied by dyspnoea. She was never able to take proper food, as tachycardia was sure to follow an average meal. The sixth sister died at about six years of age from concussion of the brain. She had dropsy which was said to be due to cardiac disease. The eldest niece has developed symptoms of tachycardia and cannot join in games, races, &c.

We thus see that both grandmothers, the father, the mother, the aunt, four out of six daughters, the three sons, and at least one niece were, or are, victims to heart lesions. The trouble did not show itself to any appreciable degree in most of these cases until at least early adult life. We cannot therefore say definitely how many of the fourth generation will escape, but from present appearances it is almost certain that more than the one will suffer.

Postscript.—Since I wrote the above notes of the case the patient died very suddenly during an acute attack.

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THE EFFECT OF DIPHTHERIA ANTI-TOXIN ON THE TUBERCULO-OPSONIC INDEX.

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In the *Liverpool Medico-Chirurgical Journal* for 1906, Vol. XXVI., Dr. T. R. Bradshaw and Dr. E. E. Glynn recorded in a series of nine cases the occurrence of low indices to the tubercle bacillus in patients previously injected with anti-diphtheritic serum. The number of cases was not large enough to justify a very decided inference, and the following observations were undertaken with a view of clearing up the relationship. The subjoined tables give the results in a concise form.

TABLE I.

—	Before antitoxin.	24 to 48 hours after.	14 to 15 days after.
1	0.97	1.00	0.75
2	1.06	1.04	0.94
3	0.99	0.98	0.99
4	1.12	1.21	0.94
5	0.85	1.27	0.82
6	1.01	1.03	0.83
7	1.00	1.08	1.00
8	1.03	0.88	1.04
9	0.97	1.07	1.03
10	0.91	—	1.00
11	1.01	1.14	Died.
12	1.00	1.10	1.03
Average ...	0.99	1.07	0.94

It may be observed that all the cases examined were free from obvious signs of tubercle, none were under a year old, and the blood was submitted to examination within 24 hours of withdrawal.

TABLE II.

—	Index.	Amount of antitoxin.	Day after injection.	Age of patient.
1	0.91	60,000 units.	10th	—
2	0.93	12,000 „	22nd	4 years.
3	0.66	12,000 „	25th	4 „
4	0.78	21,000 „	26th	4 „
5	0.86	15,000 „	26th	1½ „
6	0.91	15,000 „	28th	6 „
7	0.74	15,000 „	28th	18 „
8	0.94	18,000 „	29th	—
9	1.00	15,000 „	29th	17 years.
10	0.87	9,000 „	29th	12 „
11	0.94	18,000 „	31st	7 „
12	0.80	9,000 „	32nd	—
13	0.84	9,000 „	30th	8½ years.
14	0.73	18,000 „	34th	12 „
15	1.09	6,000 „	34th	1½ „
16	0.75	24,000 „	35th	6 „
17	1.03	9,000 „	35th	2½ „
18	0.88	12,000 „	36th	—
19	0.83	30,000 „	39th	—
20	1.00	12,000 „	40th	—
21	1.01	18,000 „	46th	2 years.
22	1.05	24,000 „	46th	—
23	1.16	12,000 „	47th	—
24	1.02	30,000 „	47th	—
25	0.96	12,000 „	48th	5½ years.
26	0.97	15,000 „	50th	2 „
27	0.75	18,000 „	54th	—
28	0.91	15,000 „	56th	7½ years.
29	1.01	18,000 „	58th	2 „
30	0.97	30,000 „	72nd	7 „
Average ...	0.913	—	—	—

In no instance were less than 200 cells counted, the average number of bacilli being 2 to 3 per leucocyte.

From these results it will be seen that there is no great variation in the average index before and after the injection of serum. Nevertheless, a definite rise is apparent in the average index two days after injection, and this gains significance from the even distribution over individual readings. (Compare columns 1 and 2, Table I.) This was also noted in two of Dr. Bradshaw's cases. In Table II. the average index is within normal limits, but more than one-third of the indices are below 0.90, only six are above unity, while five are below 0.80. Arranging these according to the week in which taken, one half fall in the fourth and fifth weeks, giving an average of 0.86, and those during the sixth and seventh weeks 0.96. The other factors—age and dosage—seem to have little influence. As regards the former, the average index of those up to and including four years is about equal to the average of those between four and seven years and also to the total average. In the matter of dosage again, the average of cases receiving from 15,000 to 60,000 units of antitoxin is practically the same as that of those who got only from 6000 to 12,000.

One must conclude, then, that in healthy subjects the effect of diphtheria antitoxin on the tubercle index is small, and it is quite possible that the larger variations are due to some hidden tuberculous lesion—e.g., in Cases 4 and 5, Table I. But two points seem to emerge from these figures. Firstly, that there is in the majority of cases a definite rise in the tuberculo-opsonic power shortly after the injection of antitoxin; and secondly, that during some few weeks after this a somewhat low index to the tubercle bacillus is the rule. Also, these effects are independent of the quantity of antitoxin administered and probably of the age of the patient.

In conclusion, I have to acknowledge my indebtedness to

Dr. J. Brownlee and Dr. A. S. M. Macgregor of Belvidere Fever Hospital, Glasgow, whence I derived most of my material.

Glasgow.

A CASE OF MISSED LABOUR.

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A MARRIED woman, 29 years of age, was admitted to Bradford Royal Infirmary on Oct. 24th, 1907, suffering from "abdominal tumour." Her menstruation had been regular until Oct. 19th, 1906, when her period ceased. In January, 1907, her abdomen became larger and continued to increase in size. Milk appeared in her breasts and she felt quickening. She had morning sickness and thought herself pregnant. The abdominal swelling gradually increased and the amenorrhoea persisted until May 19th, when she had a flooding followed by a slight reddish vaginal discharge, occasionally offensive, for ten weeks. She was in bed a few weeks; she had no febrile symptoms, and complained only of weakness. Since then she had two periods, one in September and the other early in October, both normal, but the loss was slight. She had no pain at these periods. She had had a feeling of weight in the pelvis, mainly on the right side, for the previous five months and her strength did not return satisfactorily. Her abdomen diminished in size from May 19th onwards. She had no trouble with the bowels or bladder except that she thought she had not been able to empty her bladder completely for some months, the act of micturition stopping suddenly. She had two children, six and seven years old respectively, and had had one miscarriage (at three months) four years ago, after which the patient was curetted.

On physical examination the patient was a dark brunette, fairly well nourished, with a slightly hectic flush about her cheeks. The mammae were large and lax and showed a very well-marked areola and secondary areola; no milk could be expressed. The abdomen was distended to about the size of a seven months' pregnancy, and on palpation a rounded tumour could be felt rising out of the pelvis and extending about three fingers' breadth above the umbilicus. The upper limit of the swelling was rather higher on the right than on the left side, and its lateral margins were 1 inch from the right and $3\frac{1}{2}$ inches from the left anterior superior iliac spines. The tumour as a whole had slight lateral mobility. It was firm in consistence, and in the right loin one could feel hard rounded bodies, and at times crepitus could be obtained. On vaginal examination the perineum was lax; the cervix parous, firm, slightly mobile; the os admitted the finger tip; the body of the uterus could not be felt apart from the rounded mass which filled the upper part of the pelvis and constituted the lower portion of the rounded abdominal tumour. There was a brownish discharge, slightly offensive.

On admission the patient's temperature was $103\cdot6^{\circ}$ F., the pulse was 130, and the respirations were 30 per minute. The tongue was coated. She felt quite comfortable. She remained in bed from Oct. 24th to 30th. She had a vaginal douche three times a day, large diet, and twice a gentle purge. She had an offensive vaginal discharge, reddish-brown, not much in amount, but coming away more freely after the douche. Her temperature remained high, with marked morning remissions, but even with a temperature of $103\cdot4^{\circ}$ she complained only of slight thirst and of feeling hot. The pulse varied from 98 to 126, and the temperature from 98° to $103\cdot6^{\circ}$. Difficulty was experienced in attempting to pass the sound, and it was decided to examine the patient under an anaesthetic on Oct. 30th. Under ether the sound passed into the uterus for six or seven inches with ease, and it was decided to dilate the cervix and empty the uterus. The cervical canal was dilated first with Hegar's dilators, then with Bossi's dilators slowly and gently. The hand was then passed into the uterus and the shoulder of the foetus was found presenting. The uterine wall was felt to be intact. The arm of the foetus was pulled down; the head was cut off with a sharp hook; the body, then the head, extracted easily; the cord remained attached in utero. A good deal of dirty fluid escaped and the odour was exceptionally offensive. A coil of small

intestine now appeared at the vaginal orifice, and when the hand was passed into the uterus was found to protrude from a rent in the posterior part of the lower uterine segment, slightly to the right of the middle line. The intestine was pushed up. The abdomen was opened by median incision. The omentum and bowel presented. A large flabby uterus, necrotic, adherent all round to various parts of intestine, was exposed. There was no sign of any attempt at contraction on the part of the uterus, and its wall was very thin, hardly thicker than stout brown paper, except in the region around which the placenta was attached. The necrotic wall had given way in several places besides that felt per vaginam. The upper part extended as far as the under surface of the liver, to which it was adherent. The "uterus" was dissected off from intestine and omentum; parts of the latter being necrotic were removed. A portion of the uterine wall was too closely adherent to be removed with safety and the surface was pared with scissors. The uterus and ovaries were removed and a few bleeding vessels were tied. Some necrotic tissue adherent to the under surface of the liver was scraped and a drain was left in the loin. Meantime the abdominal cavity was thoroughly washed out with saline solution. A packing of iodoform gauze was left as a vaginal drain and the abdominal incision was closed with through-and-through sutures of silkworm gut.

During the operation about two and a half pints of saline solution were injected intravenously and 20 minims of strychnine hypodermically. The patient's general condition was fairly good until near the end, when the pulse became small and weak, and she left the theatre almost pulseless. She had hot bottles, continuous rectal irrigation, and digitalin and strychnine hypodermically. Her pulse became countable, regular, about 170, and she regained consciousness in an hour or two, but she never rallied from the profound shock of the operation, and died in 15 hours.

The placenta was firmly adherent to and incorporated with the uterine wall. The umbilical cord was inserted about the centre. Only over the placental area did the upper part of the body of the uterus show anything approaching the normal thickness; in the other parts it was exceedingly thin, yellowish in colour, and tore readily when handled; there was no obvious muscular structure. The upper part did not bleed when torn. Near the cervix the muscular substance was apparent, but softer than normal and bled on cutting. The foetus was a male, well developed, looking not much short of full time. The skin was white, and there were no blebs, areas of pigmentation, or shrivelling. The skull bones were well developed but separated, and exposed the membranes of the brain loose and shrunken. The genitals appeared to be nearly fully developed. The length from the heel to the natal fold was about five inches, of the upper limb about five inches, and from the heel to the lower part of the neck about $14\frac{1}{2}$ inches.

Missed labour is so rare an occurrence that in this case the diagnosis was not made with certainty until the sound had been passed into the uterus under an anaesthetic; an attempt to pass the sound previously had been unsuccessful. No reason was found why the contents of the uterus should not have been discharged on May 19th, when there was apparently an attempt at premature labour. There was no tumour in the pelvis. The most interesting feature of the case was the necrotic condition of the uterus and its bearing on treatment. The uterine wall, except at the placental site, was exceedingly thin and friable, and incapable of any attempt at contraction or of being manipulated even gently without tearing. Consequently the treatment usually advocated, and that tried in the first instance—viz., the dilatation of the cervix uteri and the clearing away of the contents of the uterus per vaginam, was inadvisable. It appeared that it would have been impossible to deliver the foetus per vaginam without rupture of the friable uterus. The fact that an emergency abdominal section had to be performed materially increased the length of time under anaesthesia and the shock of the operation. Had an abdominal section been performed first of all the patient would have had a much better chance.

In the *British Medical Journal* of Sept. 19th, 1908, a case of Missed Labour is recorded by Dr. A. Dempsey in which he dilated the cervix and emptied and washed out the uterus. The patient was seven months beyond the normal term of pregnancy. She made a good recovery. The interior of the uterus had a rough leathery feel. Dr. Oldham, on the