positive reaction was exhibited by the blood of persons who had gone through an attack many years previously, and even by that of persons suffering from febrile attacks of a non-typhoid character, the "test" appeared to have lost all practical value. But the labours of **G. Fraenkel, C. Stern, O. Förster,** and above all of **Scholtz,** have shown how these sources of error may be avoided and the test rendered conclusive. It is, in fact, simply a question of dilution; for though the blood of non-typhoid cases will react with culture fluids in dilutions of 1 : 10, or even 20, though very faintly; the lowest dilution at which that of a typhoid case, mild in type and at an early stage, has ceased to re-act is 1 : 45, while the great majority will easily bear dilution to the extent of 1 : 50, or more; indeed, a positive result has been obtained with 1 : 200. The line of demarcation may therefore be put at 1 : 30 or 1 : 40. Scholtz, experimenting with the blood of persons in good health, who had had typhoid eight, ten, twelve, and fifteen years previously, obtained reactions with dilutions ranging from 1 : 25 to 1 : 12. This reaction is evidently connected with the persistence and degree of immunity conferred by the previous attack. Scholtz uses a capillary pipette graduated to 0·01 c.cm., with which he mixes blood taken by a needle puncture on the ball of the thumb with a broth culture of the bacilli (kept for the six hours preceding at 37° C.) first in equal proportions, when if the result be negative nothing more is needed; but if a reaction occurs he next tries 1 : 50, in which proportion a positive reaction is decisive of typhoid. Should it, however, fail, he tries 1 : 20 and 1 : 30; with the former a positive reaction is compatible with typhoid at some previous date, or with non-typhoid febrile state; the latter indicates past or present and incipient typhoid, and calls for another observation after the lapse of a week, when, if the present illness be really typhoid, a positive reaction is sure to be obtained with a 1 : 50 dilution, whereas the energy of the serum resulting from a past attack will remain the same. In one case in which during life all clinical evidence of typhoid was wanting, the first and only observation made after death gave an unmistakable positive reaction, which was fully confirmed by the lesions found in the subsequent autopsy.

MEDICAL JURISPRUDENCE.

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1. The fatal use of diachylon (lead plaster), taken with the object of procuring abortion.

In certain parts of England, notably in the Midland districts, the practice of taking diachylon in the form of pills, to bring on miscarriage, is by no means uncommon, and is far more prevalent among the working classes than is generally supposed. Apart from the criminal element of the procedure, the practice is a most dangerous one to women taking such a preparation, since marked lead poisoning must result before an abortion is likely to occur. The connection of lead poisoning with abortion has frequently been noticed. In the potteries, women who have become the victims of lead poisoning have frequently been known to abort. During the outbreak of lead poisoning some years ago in Sheffield from contamination of the water supply, it was noted that pregnant women who became affected either aborted or had premature labour. **G. F. Crooke** (*Lancet*, July 30, 1898), describes an instructive case of poisoning by lead, contained in diachylon, taken with the object of procuring abortion. A young married woman, twenty-three years of age, took diachylon plaster in the form of pills for some weeks (the exact amount taken was not ascertained), and aborted about the third month of pregnancy. Before and after the abortion she suffered from lead poisoning, the symptoms being intense headache, colic, anorexia, thirst, attacks of diarrhœa and vomiting, numbness and loss of power in the left arm and hand, and general weakness and prostration. She continued to take the diachylon for six days after the abortion, under the impression that there was something more to come away, so that the lead accumulated in the system, and finally manifested its effects with great violence. On the sixth day after the abortion she was seized with paroxysms of intense pain, apparently abdominal, and when seen was in a condition of maniacal delirium. Along the free border of the gums there was a distinct slaty-blue line. A small quantity of urine drawn off by the catheter was found to contain albumin and a few red blood corpuscles. During the attacks of eclampsia the left arm was practically passive, and appeared to be paralysed

The patient died from exhaustion on the second day of the convulsive seizures.

2. The value of oxygen in morphine poisoning.

D. T. Playfair (*Lancet*, August 27, 1898) records a case illustrating the efficacy of oxygen inhalations in the treatment of severe morphine poisoning. A woman, aged thirty-seven years, swallowed, on an empty stomach, rather more than 30 gr. of morphine acetate in solution. Treatment was commenced some three hours or more after taking the poison. She was then in a condition of profound coma, the face was livid, and the fingers were ashy grey as far as the second joints. The pupils were contracted, and did not react to light, but at no time were they strikingly small. The breathing was very slow and shallow, and the pulse very weak. The stomach was washed out first with water and then with a solution of potassium permanganate, after which a pint of strong coffee with 1 oz. of brandy was introduced into the stomach. Hypodermic injections of atropine and strychnine were given at intervals, and as the cyanosis became intense, and the pulse exceedingly feeble, artificial respiration was resorted to. This produced little or no alteration of colour or pulse. About five hours after the poison had been taken, inhalations of oxygen were commenced, and in a very short time the cyanosis became much less marked, and the pulse became stronger. After employment of the oxygen for four hours, the patient's condition seemed utterly hopeless, but artificial respiration and oxygen inhalations were persevered with. After the oxygen had been employed for nearly ten hours, the patient partially recovered consciousness, was able to speak and swallow some black coffee, and then made a rapid recovery. The oxygen was administered by passing into the mouth a vulcanite nozzle attached to a tube leading from the cylinder of gas, an indiarubber regulating bag intervening. At each respiratory movement a stream of gas was allowed to flow, the tube being pinched close during the expiratory movement. Altogether, about 80 cubic feet of oxygen were used.

3. The treatment of chloroform poisoning.

S. T. Reid (*Brit. Med. Journ.*, Nov. 20, 1897) records a case in which over 2 fluid ounces of chloroform were swallowed by an adult man. When seen he was partially unconscious. Coffee was given, artificial respiration resorted to, and the electric current employed, one pole being placed over the nape of the neck, and the other at the ensiform cartilage. The current was gradually increased from 30 to 50 volts. In the meantime, strychnine was hypodermically injected, commencing with one-eighth of a grain. After this, injections of one-twelfth of a grain

were administered at hourly intervals, until nearly half a grain of strychnine had been given, when full evidence of the action of the drug became manifest. The patient then made a good recovery. The points of interest in the case are that the respiratory mechanism was kept at work, during the period that the vapour of the poison was being exhaled, by the combined action of the electrical current and strychnine on the respiratory centre.

4. The cause of death by electric shock.

It is well known that a powerful electric current kills immediately. Two views have been held as to the cause of death : (1) That death is due to failure of the respiratory centre ; (2) that it is due to sudden arrest of the heart's action. T. Oliver and R. A. Bolam (*Brit. Med. Journ.*, Jan. 15, 1898) have conducted a series of experiments with the object of ascertaining which of these views is correct. They found that primary cessation of the heart's beat is without doubt the general rule. In a few of their experiments, death seemed to be due to contemporaneous cessation of the respiration and heart's action, but such apparently only occurred in the case of very high voltages, with currents considerably above the potential usually required to kill the animal. Alternating currents, which are generally thought to be the most dangerous to life, were solely used in these experiments, but H. Lewis Jones (*Brit. Med. Journ.*, March 2, 1895) had previously shown that continuous currents act in the same manner. The problem of treatment of resuscitation in apparent death from electric shock is increased in difficulty by the fatal result being brought about by the heart. The endeavour to excite contraction of the arrested heart by means of cardiac tonics resulted in failure. Artificial respiration appears to hold out the only possibility of restoration, but if recovery is not accomplished in twenty or thirty minutes the prognosis is very unfavourable.

5. Belladonna poisoning from the use of atropine eye-drops.

W. J. Harris (*Lancet*, Jan. 8, 1898) reports a case in which the symptoms of belladonna poisoning rapidly developed after the use of sulphate of atropine eye-drops. The patient, a woman, aged thirty years, was suffering from syphilitic iritis, and was ordered atropine drops for the eyes (4 gr. of sulphate of atropine to 1 oz. of distilled water), two drops every four hours. After using them for a day and a half, she developed the following symptoms of belladonna poisoning : flushed face, excited state, quick pulse, dryness of the tongue, lips, mouth, and throat, with a great craving for drink and widely dilated pupils. The drops were discontinued, and under treatment she made a rapid recovery.

6. Sulphonal poisoning.

J. F. Gillett (*Brit. Med. Journ.*, Sept. 17, 1898) describes a case of sulphonal poisoning in a girl, aged seventeen, who took 60 gr. of sulphonal in three doses of 20 gr. each over a period of four hours. Soon after taking the last dose she became drowsy, and slept for about two hours, when she woke with a feeling of nausea, and on getting up was markedly ataxic. Her condition rapidly became worse, and marked muscular twitchings with shallow respiration supervened. The temperature was subnormal, the heart's action became very weak, and the pulse was 58. The patient suffered from visual hallucinations, and when spoken to became wildly delirious. Strychnine and brandy were administered hypodermically, and later croton oil was given, and also hyoscine hypodermically. The patient became quiet, and made a slow but uninterrupted recovery.

7. "Headache powders."

These powders, which, unfortunately, are largely advertised and indiscriminately used by the general public for the relief of headache, usually consist of antipyrin or antifebrin, with occasionally some caffeine citrate in addition. As may be expected from the indiscriminate use of such powerful drugs as antipyrin and antifebrin, deaths have occurred from taking these powders. Recently (*Brit. Med. Journ.*, June 11, 1898) a young man died from the effects of taking two "headache powders," which were found to consist of antifebrin. The symptoms produced are of the anilin type, and consist of giddiness, noises in the ears, throbbing in the temples, and a dull, heavy pain in the head. The face becomes livid, the lips are blue, and the pupils are contracted. Symptoms of collapse follow, the face and extremities become cyanosed, the pulse is feeble, the respiration is shallow, and the skin is covered with cold, clammy perspiration. The treatment consists in emptying the stomach by means of the stomach-pump or stomach-tube, or by means of a brisk emetic, and then freely employing stimulants and external warmth.

8. Poisoning by privet berries.

Poisoning by privet is a very rare occurrence. The symptoms consist of vomiting, purging, cyanosis, convulsive twitchings, which may pass on to violent convulsions with marked opisthotonos, and great thirst. Early in 1898 (*Lancet*, Mar. 5, 1898) a child, aged eight years, died a few hours after eating privet berries. At the *post-mortem* examination the lungs were found congested, and the stomach was also much congested, and had one patch of superficial ulceration about the size of a shilling. The heart, liver, and kidneys were quite healthy.

9. Survival for eleven months after a penetrating wound of the heart.

Faralli and Ragnini (*Giorn. Med. del Regio Esercito*, An. 15, n. 8, 9) report the case of a man who received two knife wounds, one in the fourth left intercostal space, and the other under the left costal arch. There was considerable hæmorrhage from the upper wound, and he was unconscious for three hours. The wound was dressed, and six weeks later he left the hospital apparently cured, although faintness occurred on strong exertion. Eleven months later he developed peritonitis, for which laparotomy was performed, and eleven days after this operation he died. At the *post-mortem* examination the heart was found adherent all round to the pericardium. There was a cicatrix in the anterior wall of the right ventricle about $\frac{1}{2}$ in. from the interventricular septum, and an open communication was found between the two ventricles, having fibrinous deposit on the edges of the orifice. Although this communication between the two ventricles had existed since the receipt of the injury, the patient at no time had cyanosis.