Urticaria.

Menagh: 260 cases; 32.6 per cent.
 Rackemann and Colmes: 25 per cent.
 Rowe: 20 cases; 55 per cent.

Angioneurotic Oedema.

Ensor: 33 of 80 persons in five generations; 41 per cent.
 Osler: 22 of 36 persons in five generations; 61 per cent.
 Rowe: 14 cases; 43 per cent. gave history of similar complaint.
 Whiting: 205 cases; 53 per cent. 110 in family groups comprising total of 207 individuals.

Eczema.

O'Keefe and Rackemann: 239 cases; 28 per cent.
 Rackemann: 36 per cent. children, 50 per cent. adults.
 Rowe: 16 cases; 69 per cent.

Migraine.

Bramwell: 50 per cent. cases show direct transmission, mostly through mother.

Buchanan: Transmission is expression of Mendelian phenomenon. Unilateral history in 100 families with 631 children, 22.6 per cent. had migraine. No history in seventeen families with 115 children, 26 per cent. had migraine. Bilateral history in three families with 15 children, all had migraine.

Diamond: 35 cases. Nearly all gave positive family history with transmission in main through mother.

Rowe: 30 cases; 86.6 per cent.

Tileston: 50 per cent. cases show direct heredity, even for three to four generations.

Ball: From 1,000 unselected family histories—261 cases migraine; associated with migraine in other members in 45.9 per cent. 162 cases asthma; associated with migraine in 37 per cent. 91 cases hay fever; associated with asthma in 49.4 per cent., and with migraine in 38.4 per cent. Eczema; associated with eczema in 21.3 per cent. and with migraine in 40.9 per cent.

Established Facts.

The main facts which have accrued from the vast amount of consideration that has been given to the subject of the transmission of the tendency to exhibit allergic manifestations may be summarized as follows:

1. The allergic diathesis is transmitted as a Mendelian dominant.
2. The greater the heredity the earlier are symptoms manifested.
3. The earlier in life the individual becomes sensitive the greater the tendency to multiple sensitization.
4. Asthma, hay fever, eczema, urticaria, angioneurotic oedema, and migraine appear to be intimately correlated, and to be interchangeable.
5. A child born in a family with a pure hay fever lineage is much more likely to be affected with hay fever than with asthma, and vice versa.
6. Where several members of one family are affected, sensitization is not identical as regards the specific proteins, nor are the clinical types of allergy or the symptoms displayed in each type themselves identical in different members of the same family.

The main additions deduced from this study are:

1. Puberty must exert some beneficial effect upon the symptoms in the male and/or some deleterious effect upon the female, for before puberty the incidence of males to females is over 2:1, whilst from puberty onwards it is less than 1:1.
2. Heredity plays very little part in determining the age at onset of symptoms during the first decade.
3. Transmission appears to be twice as frequent through the female as through the male, for (a) when there is a unilateral family history it is twice as frequently on the mother's side as the father's; (b) when the parents are unaffected the transmitter is twice as often the female; (c) when the male is unaffected and the female has or may transmit the tendency, twice as many are affected with allergy as when the male is affected or is a transmitter and the female is quite free.
4. A positive family history of allergy is present in about 70 per cent. of cases of asthma in children—in over 50 per cent. unilateral, in nearly 20 per cent. bilateral; 10 per cent. appears to be the maximum incidence in the families of presumably normal persons.

In conclusion, I would like to convey my thanks to the physicians at the Hospital for Sick Children for kind permission to make use of cases under their charge, as well as to the Asthma Research Council, under whose grant these investigations have been rendered possible.

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NOTES ON ADDER BITE.

BY

MARK R. TAYLOR, M.R.C.S., L.R.C.P.,
 REGIONAL MEDICAL OFFICER, MINISTRY OF HEALTH.

SOME years ago Sir Thomas Oliver published an article on adder bite in the *British Medical Journal* (December 9th, 1922, p. 1115), and at his request I sent some notes, published on March 13th, 1923 (p. 375), on a case I had seen and on others of which I had knowledge. Since then I have seen the two cases now to be described.

CASE I.

About four years ago I examined, with Dr. Ryder Richardson of Saxmundham, Suffolk, a child, aged about 3 years, who had been bitten about two hours previously. The bite was on the dorsum of a terminal phalanx of a finger. Before our arrival the district nurse had applied silver nitrate so effectively that the punctures were invisible. The child was comatose, pallid, sweating, and almost pulseless. Dr. Richardson injected strychnine, incised the area of the punctures, and rubbed in permanganate. By that time the hand and arm were much swollen and discoloured. Later he informed me that the child had recovered, after suffering several days' severe illness, during which the arm and side of the chest became very swollen and turned all the colours of the rainbow.

CASE II.

In March, 1927, a strong and healthy man of 57 (a patient of Dr. Barber of Sandown, Isle of Wight) was out adder hunting, and while catching an adder in some rough grass he thought his finger had been pricked with a bramble. About twenty minutes later he felt pain in the hand and noticed that it was swelling. The swelling spread up the arm and over the chest, and he began to feel nausea and giddiness; he became so sleepy that he had difficulty in getting back to his farm. Forty-five minutes after he was bitten he was put in a car and taken to the doctor, who injected a stimulant. Violent diarrhoea set in, but the patient was able to walk to the car, in which he was driven home. During the journey he had hallucinations, seeing "large girders being erected for the construction of a skyscraper." When he arrived home he was unable to walk upstairs, and on getting into bed he had a rigor and his breathing was stertorous. Vomiting and diarrhoea continued for some hours; his face was swollen and purplish; the arm continued to swell for three days, and was quite lifeless. He suffered intensely from thirst and drank large quantities of barley water and lemonade, but passed no urine for seventy-five hours after he had been bitten. When, at the end of a fortnight, he was able to get up, he felt very weak and found that his right leg was slightly swollen. The swelling of the right arm persisted for some nine months; he could use it only with difficulty, and the movements were limited apparently by the oedema.

I saw the patient in August, 1928, some seventeen months after the accident. He was getting electrical treatment and massage,

The arm was not swollen, but movements of the shoulder were stiff and painful, and he could not close his fist. Deep pressure behind the middle third of the clavicle produced pain.

I saw him again in December, 1928, when he had returned to work. He complained of some loss of grip in handling his tools. He could just make his fingertips touch his palm, and complained of pain on forcible flexion of the fingers. During the first year most of his inability to move the arm was due to the oedema. When I saw him there seems to have been some paralysis as well.

The following cases have been brought to my notice:

CASE III.

A child was admitted to the Royal Victoria and West Hants Hospital, under Mr. Kinsey-Morgan, having been bitten the previous day; his arm was greatly swollen and hard, and Mr. Kinsey-Morgan made multiple incisions and drained the brawny area. This treatment, he says, gave dramatic relief, and the child was much better in two days, by which time antivenin had been obtained and 15 c.cm. administered. The child was in hospital eleven days.

CASE IV.

Dr. B. of Bournemouth, lying in some long grass, was bitten on the thumb; he thrust out instinctively, and was struck again on the other thumb. A few hours later intense vomiting and diarrhoea, with collapse, set in. He incised the puncture at once and later saw a doctor, who applied strong ammonia. The arms were much swollen and purplish, and the pain was very severe; owing possibly to cauterization by the ammonia the skin of both thumbs ulcerated and took several months to heal. One thumbnail was lost.

Recently, in the *Daily Telegraph*, a correspondent extolled a wonderful cure for adder bite discovered by "Brusher Mills" of Lyndhurst. "Brusher Mills" was a well-known character in the New Forest; he died in 1905.

One of his chief activities was collecting adders for zoos and laboratories; he prepared his "cure" by extracting the fat from adders, boiling it and straining it through a scorched cloth, letting it set like a jelly. It is said that he used to charge a guinea an ounce for this product. He professed to have no fear of adder bite as long as he had some of the fat with him. "Brusher's" remedy was a form of sympathetic magic, which appears to be world-wide, and is practised by Australian aborigines, Hottentots, and many other primitive people.

References to adder bite in medical literature seem to be very few, and Professor Francis Fraser very kindly supplied me with particulars of his father's (Sir T. R. Fraser) writings on snake venom. Madame Physalix, in her book on *Venomous Snakes*, gives very little information about English adders. Dr. Leighton (*Life History of British Serpents*, p. 130) refers to a fatal case of adder bite recorded in the *British Medical Journal* of July 15th, 1893 (p. 114); in this case a boy of 11 was bitten on the finger, had severe symptoms—oedema, discoloration, and general collapse—and died about thirty-six hours later. Dr. Stradling (Watford), in a letter to the *British Medical Journal*, July 29th, 1893, stated that he believed this to be the fourth fatal case vouched for by a competent authority. Dr. Leighton cites another fatal case which occurred in 1901, in a boy aged 4½. It is commonly said that the sting of adders is worse in the spring; it may be that during their winter sleep they store up poison, and thus have an increased or even a more concentrated supply for their first bite. It seems unlikely, however, that a supply of poison would be formed during the viper's hibernating period.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INFECTION WITH THE BACILLUS ENTERITIDIS RESEMBLING PSITTACOSIS.

OWING to the number of cases of psittacosis reported in medical and lay papers, and the fact that it is not generally known that members of the *Salmonella* group may give rise to an illness resembling typhoid and paratyphoid fever, the following case is worthy of record.

A previously healthy business man, aged 52, noticed an "uncomfortable feeling," which he referred to the upper part of the abdomen. When first seen his temperature was 97.8°, but the next day it rose to 102°, and for sixteen days his temperature ranged between 102° in the morning and 104° in the evening. The respiration was not hurried, and the pulse varied between 98 and 104. There was severe sweating at times. On the sixth day of the illness a patch of dullness and tubular breathing was found over the right apex posteriorly. On the eleventh day there was cough and purulent expectoration, and three days later medium crepitations were heard over the lower lobes of the lungs. On the twenty-fourth day of illness, when his temperature was 98.6°, he developed a left-sided pleurisy; two days later this was followed by pericarditis, and within twenty-four hours there was an extension of the cardiac dullness upwards and to the left. The respirations were now 40, and the pulse 120; the heart sounds were very feeble, and triple rhythm was heard. The systolic blood pressure figure was 65. The face was dusky, and the lips and ears were cyanosed. The patient lay in a state of semi-coma. His condition was grave, and for six days he was between life and death; then his blood pressure rose to 100, his pulse and respirations became less rapid, and he made a slow recovery. During his illness there were no rose spots and no enlargement of spleen. Constipation was present throughout the illness, and required aperients and enemas.

The blood serum showed positive agglutination with *B. enteritidis* in dilutions of 1 in 50; ten days later it gave a positive reaction to the same bacillus in dilutions of 1 in 25. No *Salmonella* or *B. typhosus* were recovered from the faeces. There was complete absence of agglutinins to *B. aertrycke* (two types), *B. paratyphosus* A and B, *B. typhosus*, and *B. abortus*. The serological investigations were conducted at the Royal Infirmary, Sunderland, on the tenth and twentieth days of illness.

Summary.

The pyrexia resembled that of typhoid fever, and on one occasion the temperature was higher in the morning than in the evening; the pulse was relatively slow, compared with the

temperature. The fall in temperature and blood pressure was followed by pleurisy and pericarditis, and the general condition became worse. The brunt of the attack was borne by the heart and lungs, resembling in this some of the published cases of psittacosis. There is a strong suspicion that the illness may have been conveyed by a human carrier. I have reason to believe that if the agglutination tests were more generally adopted there would be fewer cases recorded as psittacosis.

JAMES C. HAMILTON, L.R.C.P., L.R.C.S.Ed.
Sunderland.

PROTECTION AFFORDED BY SHORT INFRA-RED AND RED RAYS TO A LETHAL DOSE OF STAPHYLOCOCCUS.

ONE of us (A. E.) carried out a series of experiments, reported in the *British Medical Journal* (August 17th, 1929, p. 293), which showed that a preliminary irradiation of shaved rabbits with artificial sunlight increased their resistance to an intravenous injection of staphylococcus. A lamp was used which gave infra-red, luminous, and ultra-violet rays up to 2,850 A.U. in amounts closely matching those of sunlight, and an intensity was used which did not produce severe erythema. A dose of staphylococcus was injected which proved constantly lethal to normal rabbits weighing about 2 kilograms. A fan was kept running so as to prevent any overheating of the irradiated animals during their preliminary exposure to light, which lasted forty-eight hours. The control animals all died within twenty-four hours. The irradiated animals survived for an average time of 7.43 days. One or two of these did not die.

We have carried out another series of experiments, exposing the animals to the light and heat of a gas fire. "Beam" radiant fuel was used in the fires, because this gives a greater amount of short infra-red rays, which penetrate the epidermis and cause an increased transudation of water in the skin. The heat from this type of fuel is more comfortable than the duller red heat, containing a larger proportion of longer and non-penetrating infra-red rays given off from the ordinary gas fire. These rays cause a dry, unpleasant feeling of heat in the skin exposed to them. The rabbits chosen were of about 2 kilograms in weight, shaved on both sides, and exposed in a wire cage to the cross-fire of two gas fires, one being placed