TABLE I.

Case.	Number of fits for 4 months on strontium bromide.	Number of fits for 4 months on mixed bromides.
2	13	9
4	10	22
7	8	16
9	27	13
12	11	13
Totals 5	69	73

The table shows that in two cases—viz., Nos. 4 and 7—the drug reduced the number of fits to half what they were on the mixed bromides. These two patients certainly improved on strontium bromide. But in the two cases (Nos. 2 and 9) the seizures were more numerous on strontium bromide than on the mixed bromides.

TABLE II.

Case.	Number of fits for 4 months on strontium bromide.	Number of fits for 4 months on mixed bromides.
1	29	81
3	41	48
5	22	19
6	96	136
8	44	57
10	25	54
11	20	17
Totals 7	277	412

Group 2 is composed of (b) the remaining seven cases. These patients were all treated in a similar manner to those forming Group 1. Table II. shows the total number of seizures which they had were : (1) 277 on the bromide of strontium, and (2) 412 on the mixed bromides of sodium and potassium. The decrease of the fits therefore on the former treatment was 135, or 32·7 per cent. The drug was specially useful in the three cases (Nos. 1, 6, and 10). One patient (No. 8) after taking the bromide of strontium for six days became very dull and stuporous. The dose of the drug was accordingly reduced from 30 to 15 grains three times a day. This patient, previously to the strontium bromide treatment, had been taking some form of bromide for months, so it is difficult to say whether the stuporous condition which was noted soon after taking the bromide of strontium was in reality caused by, or related to, the action of this particular drug. The general health of the patients remained satisfactory throughout the strontium bromide treatment. No favourable effects as regards the maniacal symptoms were observed. No bromide rash made its appearance during the treatment. The temperature charts revealed nothing of importance.

The ten female patients chosen for treatment by strontium bromide were all chronic cases of epileptic mania, with attacks of both *grand* and *petit mal*. In Group 1, which is composed of six patients, charts similar to those drawn up for the male cases were kept for a period of three months (a) while the patients were taking 30 grains of strontium bromide thrice daily and (b) while taking no bromides.

TABLE III.

Case.	Number of fits for 3 months on strontium bromide.	Number of fits for 3 months on no bromide.
1	18	32
2	14	30
3	0	16
4	27	47
5	31	57
6	29	41
Totals 6	119	223

Table III. gives the results of the charts as regards the fits. The six patients while on the bromide of strontium had

a total number of 119 fits, as against 223 on no bromide salt. There was, therefore, a reduction of the seizures by 104—i.e., 46·6 per cent., in favour of the drug treatment. The above facts prove without any doubt the usefulness of this drug in controlling the fits. Of course, I am fully aware that the fits would have been reduced if the patients had been taking one or more of the other bromide salts. The mental condition of all these patients improved to a certain extent on the strontium bromide treatment, but whether this was due to the direct action of this salt on the cortical cells or was the result of a diminution of the fits I am unable to say. The patients, however, were less irritable and not so liable to outbreaks of mania. No rashes made their appearance. In no case was there any marked depression or occasion to diminish the dose of the drug.

The rest of the female cases are contained in Group 2. In this group charts were kept for three months, while the patients were taking 30 grains of strontium bromide thrice daily, which will be compared with similar ones while they were taking 15 grains each of sodium and potassium bromide for a like period.

TABLE IV.

Case.	Number of fits for 3 months on strontium bromide.	Number of fits for 3 months on mixed bromides.
7	39	48
8	67	70
9	15	32
10	5	25
Totals 4	126	175

A comparison of the two treatments shows that there was a decrease in the total number of fits by 49, or 26 per cent. in favour of the bromide of strontium. The patients were brighter in every way and the attendants considered their general behaviour improved.

Summary.—1. That, judging from my own experience, strontium bromide, as a rule, acts better in controlling the number and severity of the fits than the mixed bromides of sodium and potassium. 2. That strontium bromide rarely causes depression. 3. That rashes remained absent in all my cases. 4. That strontium bromide, in my opinion, acted best and most consistently on the female patients, in all of whom the action of this drug, as regards controlling the fits, was far superior to that of the mixed bromides. 5. That the maniacal symptoms of the male patients while taking strontium bromide were not influenced to any perceptible degree. 6. That the mental condition of the female patients appeared to improve. 7. That, considering the severity of the type of epilepsy on which I have made observations with this drug, there seems to me reasonable grounds for supposing that, with a milder form of epilepsy than is usually met with in an asylum an even greater benefit would be derived from the administration of this drug. 8. Lastly, I should be inclined to advise those who have epileptics under their care to give the bromide of strontium a fair trial, and I think they will find many cases in which this drug will have pre-eminence over the other bromide salts.

For much assistance on this subject I wish to tender my cordial thanks to Mr. T. S. Good, medical superintendent of the Oxford County Asylum.

St. Mary Cray.

AN OUTBREAK OF TYPHOID FEVER DUE TO EATING CLAMS FROM A POLLUTED SOURCE.

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So far as I am aware no case of typhoid fever has hitherto been recorded from the use of “clams” as an article of food. These shell-fish are not largely used but in many places near large estuaries with extensive mud-banks clams are collected and used by the poorer class of people. The clams so used appear to be two allied species of the genus *Mya*, of the class *Lamellibranchiata* which includes also the cockle and oyster. The two species are: *Mya truncata*, more common in

the open sea, and *Mya arenaria*, usually found in mud flats. This latter is universal along the shores of the Western Hemisphere as far south as New York and in the Eastern Hemisphere as far south as Rochelle and between the thirtieth and fortieth degrees of latitude, and is also common on many parts of the British coast, about low-water mark and chiefly in tidal estuaries where there is an admixture of fresh and sea water. The body of the clam is fleshy and of a yellowish-white colour and is provided with a "foot" with which it penetrates the sand or mud, the "foot" assuming various shapes for this purpose. In addition, the clam has also two syphonic tubes which when the animal is at rest are drawn down nearly into the shell. When active these syphonic tubes are protruded, one continuously drawing in and the other pouring out a stream of water, the food particles in the water being retained in the body. The shells are oval and of an ashy grey colour, a good specimen measuring about two and a half inches by five inches; those referred to in this article measured about one and a half inches by two and three-quarter inches. They are usually found buried about six inches deep in the mud but retire deeper than this when the tide is out. In Europe, Asia, and America they are used as food and relished by certain classes and are usually sold in a boiled condition. In the United States the clam is more important from an economical point of view than the oyster, large quantities being sold annually in Boston market as food for man and many more are salted and used as bait for fish. An excellent article on *Myidæ* is given in "British Conchology," Vol. III., by J. G. Jeffreys, F.R.S., from which most of the information concerning these shell-fish has been obtained.

The outbreak to which this article refers occurred in the Maldon rural district. On Oct. 20th, 1906, two men living in Heybridge were notified to be suffering from typhoid fever. The cases were immediately visited and on inquiries being made the fact was ultimately elicited that both men had partaken of some clams which were sold by a hawker in the bar of a local public house on Sept. 29th. It was unfortunately impossible to ascertain the names of all the men present in the bar when the clams were sold. Nevertheless, names and addresses of five men, in addition to the two notified, were obtained, all of whom had eaten varying quantities. In each instance ill effects had been produced; one man was found to be suffering from what was considered to be a low type of influenza but he was notified later to be suffering from typhoid fever; the second had been seized with diarrhoea and vomiting within two hours of eating the clams, the third had had a so-called bilious attack, and the remaining two had suffered from sickness and diarrhoea to such an extent as to prevent them from following their usual occupation for a few days. Thus, out of seven persons known to have partaken of the clams on this particular occasion three afterwards suffered from typhoid fever and the others from diarrhoea and sickness. Fortunately none of the cases have proved fatal.

The clams in question were obtained from the mud on the banks of the tidal estuary of the Blackwater in close proximity to the outfall sewer of the town of Maldon. They were stated to have been thoroughly cleaned and boiled but the boiling probably consisted in placing the clams in boiling water for a few seconds until the shells opened. The price charged by the hawker was four a penny and it is a significant fact that the men who consumed the largest quantities—namely, four pennyworth each—contracted typhoid fever. Unfortunately, I was unable to obtain a sample of these particular clams, but others from the same source were obtained and submitted to a bacteriological examination. The method of examination was as follows:—

1. Three clams, which had not been subjected to boiling, were taken and opened with a sterile knife and the bodies were cut up into small pieces and emptied together with the liquid contents from the shells into a sterile mortar. 900 cubic centimetres of sterile water were added to this, the resulting mixture being thoroughly stirred and ground up. A dilution was thus obtained of which 300 cubic centimetres corresponded to one clam. From this the following amounts—namely, $\frac{1}{2}$ cubic centimetre, 1 cubic centimetre, 3 cubic centimetres, and 10 cubic centimetres, which corresponds to $\frac{1}{600}$ th, $\frac{1}{300}$ th, $\frac{1}{100}$ th, and $\frac{1}{30}$ th of a clam respectively, were taken and added to tubes containing bile salt glucose broth. Acid and gas were formed in each instance after 24 hours' incubation. Plates of bile salt lactose agar containing neutral red were made from these

broths and the red colonies showing a haze were further examined and the subsequent cultural reactions corresponded with those obtained with *bacillus coli communis*. On incubating anaerobically in milk the *bacillus enteritidis sporogenes* was found to be present in $\frac{1}{300}$ th of a clam.

2. Three clams were well boiled in water for 15 minutes, the bodies were cut through, and one cubic centimetre of the liquid obtained therefrom was added to a tube containing bile salt glucose broth. Acid and gas were formed and all the reactions of the *bacillus coli communis* were obtained.

The results of this examination proved the clams to be grossly polluted with sewage, inasmuch as the *bacillus coli communis* could be detected in $\frac{1}{600}$ th, and the *bacillus enteritidis sporogenes* in $\frac{1}{300}$ th part of a clam. It is especially noteworthy that even after boiling for 15 minutes the *bacillus coli communis* could be recovered from the bodies of the clams. The presence of *bacillus typhosus* could not be demonstrated, though a few suspicious growths were obtained on Drigalski and Conradi medium. These, however, did not correspond with the confirmatory tests of this organism. The fact that even 15 minutes' boiling failed to sterilise the clams is interesting, since it proves that shell-fish from a grossly polluted source cannot be rendered safe for human consumption even when boiled so long as to render them hard and indigestible. Shell-fish, such as these, if boiled for a shorter time would be much more dangerous, as more of the bacteria present therein would escape destruction.

I am much indebted to Dr. J. C. Thresh, medical officer of health of the county of Essex, for his kindness in allowing me to publish the details of this outbreak.

Chelmsford.

ABSENCE OF THE UTERUS IN THREE SISTERS AND IN TWO COUSINS.

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THIS report of a family consisting of three sisters, the oldest 33 and the youngest 22 years of age, is offered largely as a matter of anatomical anomaly, although it is of material importance from a medico-legal standpoint since one of this trio married at the age of 25 years, and consequently became a subject of the divorce courts. The development of the breasts and the other changes known to puberty were experienced, except menstruation. The breasts and nipples were normally developed in each woman. Sentiment, sexual appetite, and sexual sensation were normal in each of these women.

Absence of the uterus is not infrequent judging from the number of cases which I have been able to collect from the literature. Lieutaud¹ has reported the case of a young woman where there was absence of the uterus, ovaries, and Fallopian tubes. Richerand² cites a similar case, both of which cases were based upon necropsy findings. From reported cases I find that absence of the uterus together with absence or deformity of the vagina is far more common than is simply absence of the uterus, and there is also apt to be associated deformity of the bladder, kidneys, clitoris, and labia. In striking contrast with these commoner deformities, the vagina, labia, and clitoris were normal in each of my cases and the hymen, or evidence of its having existed, was present twice. Phillips³ reports an instance of two sisters, both of whom married and in whom there was a congenital absence of the uterus. Phillips's cases compare very closely to the three sisters, the subject of this paper. Sedgwick⁴ cites the instance of another family where there was absence of the uterus in three of five sisters. That there was no deformity of the vagina and probably no sexual abnormality in Sedgwick's cases is evidenced through the fact that two of these three sisters were married twice. Sedgwick discusses at length the question of heredity in connexion with these malformities, but in my series of cases I was unable to gather any evidence of heredity.

¹ Dictionnaire des Sciences Médicales, vol. lx., 1812.

² Ibid.

³ Brit. Med. Jour., June 18th, 1870.

⁴ Medico-Chirurgical Review, London, July, 1863.