2. But with the "control families" there is in the M.R.C. figures a large element of error, for the so-called "control families" are by no means "non-rheumatic families." They are defined as follows (p. 9):

"These families were selected only in the respect that each contained a child attending the hospital for a non-rheumatic disease, and will be termed 'control families.'"

When the figures are examined it is found (Table 8, p. 16) that in the 200 "control families" there were 43 cases of rheumatism, apparently spread over (p. 18) at least 36 of the families. That these were not unimportant instances of previous rheumatism occurring in parents is shown by the following passage (p. 18):

"The difference in the incidence of rheumatism among the brothers and sisters of the rheumatic and control children respectively is striking, the percentage of those with rheumatism in the rheumatic families in the data from St. Thomas's Hospital being almost three times greater than that of the control families. . . ."

In view of these facts it can only be said that the so-called "control families" are not acceptable as controls. Any influence which the housing factor may have on the production of rheumatism would be, in such comparisons, considerably diluted by the presence of rheumatic families in the "control families."

3. There is no evidence in the M.R.C. Report that the housing conditions examined were those in which the disease first declared itself in the children.

4. The proportion of damp homes is much lower in the M.R.C. figures than in those of the B.M.A. Report. This is probably due to the use of a different standard of "damp," and as there appears to be no generally accepted standard such differences in separate investigations will be bound to occur.

That the M.R.C. Report was unable to confirm the traditional association between rheumatic infection and damp houses is regrettable, but, considering the type of "controls" used and the stress laid on them, it is hardly surprising. Yet there is this to be said, that even with the controls used the figures concerning the influences of damp homes, proximity to water, low-lying sites, terrace houses as opposed to tenement houses were in every case in favour of damp being a factor, though showing only small differences in the rheumatic and in the "control" series. This is surely of significance, for were there nothing in the theory of damp, the figures would hardly be likely all to point one way.

Further, there is the new evidence, already quoted from the M.R.C. Report, on the absence of rheumatism in such children of the rheumatic stratum as are moved from their own homes and placed in Poor Law residential schools. This is of great significance, for what has happened to these children to prevent their developing rheumatism? It might be thought that by their removal they had escaped from poorer food and clothing, and greater overcrowding; but these do not produce rheumatism, for the disease is less common in the poorest of the poor than in the strata of poverty above them. Again, they might be spared the disease by escaping from contact with other cases; but rheumatism is not a contagious disease. What, then, has happened? What factor, big enough to account for such a great change, has been altered? Is there any other left as likely as the condition of the house?

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A REVIEW OF 1,000 CASES OF ASTHMA.

BY
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THESE cases were seen between May, 1922, and the end of 1926, subsequently to the 270 cases the statistics of which I published in conjunction with the late Dr. Latham.

An etiological classification is still quite impossible, but cases reviewed in large numbers do tend to group themselves into more or less clearly defined types, differentiated by the prominence of some symptom or causal factor. Any one case may fall into several of the following types:

1. The type sensitive to foreign proteins.
2. The non-sensitive type.
3. The type that has asthma with colds.
4. The type that has asthma with enlarged tonsils.
5. The type that has asthma with catarrh.
6. The type having also paroxysmal rhinitis.
7. The colloido-clasic type.
8. The periodic type.
9. The type caused by bronchitis.
10. The type that also has a high blood pressure.
11. The type that has eczema.
12. The Adam's week-end type.
13. The seasonal type.
14. The type that is identified with localities.
15. The type that has asthma from severe shocks.
16. The occupational type.
17. The type sensitive to aspirin.

Type 1.—Many cases of asthma and similar complaints are due to an anaphylaxis comparable to the experimental anaphylaxis in animals. I am more than ever convinced of the value of the dermal reactions, and I have treated many patients successfully by this method. Reactions to wheat, milk, egg, dog hair, and cat hair have each led to many cases being freed from asthma without any other treatment than that based on these observations. A patient who had had asthma continuously for thirty-five years has now been entirely free for three years, after giving up his feather bed and pillows as a result of a small plus one reaction to feathers.

Statistics of Sensitization in 1,000 Cases of Asthma.

Age of Onset.	No. of Cases.	Percentage.	No. Sensitive.	Percentage.	Horse.	Cat.	Dog.	Other Animals.	Feathers.	Foods.	Pollen.
0-5	298	29.8	238	80	120	89	64	44	151	114	63
5-10	113	11.3	96	88	44	39	16	17	57	35	28
10-15	64	6.4	44	68	18	13	14	14	28	27	15
15-20	61	6.1	37	61	18	13	10	5	22	14	15
20-25	70	7.0	34	48	7	9	7	8	20	17	9
25-30	81	8.1	48	60	14	14	5	8	39	11	11
30-35	77	7.7	31	40	8	6	8	5	19	12	8
35-40	64	6.4	29	45	5	4	6	4	22	13	6
40-45	53	5.3	15	28	2	5	4	2	11	5	—
45-50	40	4.0	9	24	2	1	—	1	4	2	1
50-55	35	3.5	4	11	—	—	—	—	3	3	—
55-60	24	2.4	3	12	—	—	1	1	1	—	—
Over 60	20	2.0	1	5	—	—	—	—	1	—	—

The chief points to be noted in this table are these. Asthma commences far more commonly in babyhood and early childhood than at any other time, and the great majority of such cases belong to the sensitive type. The incidence falls steadily with increasing years, except for a small rise between the years of 25 and 30. At this age lack of exercise and frequent colds may force an incipient asthma to show itself.

The average duration of asthma in these 1,000 patients was fourteen years. I saw 539 males and 461 females; 52 per cent. of them gave a history of asthma or hay fever in their near relatives.

Beyond the fact that I am now obtaining more reactions (58 per cent.) than formerly, the figures show very little change from previous statistics. The increase in the number of cases found to be sensitive is due to the much larger range of proteins I now use for testing—some 180 in all. I use six different kinds of feathers—hen, goose, duck, pigeon, canary, and parrot—where formerly I had only one. The specificity of the reaction is so well marked that patients may react to one of these and not to

others. Face powders, silk, linseed, and other causes of sensitization turn up from time to time.

A particularly interesting protein is that of house dust; patients often give a reaction to the dust from their houses and to nothing else. American observers and van Leeuwen have also noted this. On one occasion I found I was obtaining an unusually large number of reactions to flour. Patients would react to it when they would not do so to anything else. In comparison with this we may note that van Leeuwen finds in Holland many cases of asthma due to the habit they have there of keeping flour and grain in the house and to its becoming infected with mites and moulds. I have added this infected wheat and the house dust to my routine tests. I have noted that patients in whose sputa moulds are detected suffer from a particularly pernicious type of asthma.

Having discovered proteins to which the patient is sensitive, three methods of treatment are available.

(a) *The avoidance of the protein.* The only proteins which it is difficult to remove from the patient's surroundings are the pollens, horse hair, house dust, and the proteins amongst which he works.

(b) *Specific desensitization.* Provided the correct dosage is arrived at by the dermal reactions using dilutions of the protein great success often follows this method.

(c) *The non-specific method of desensitization.* In certain cases peptone given intravenously is very valuable, in others I prefer the Danyasz or mixed coliform vaccine, after which a particularly permanent cure may result. Autohaemotherapy and colloidal manganese, either separately or together, have cured many cases.

Many patients are benefited by small doses of vaccine and made much worse with large doses. If a dose grossly upsets a patient, especially if it gives him an attack of asthma, a dose ten times smaller should be tried.

With perhaps half a dozen exceptions every one of this series of 1,000 cases of asthma has been tested to all those proteins which may be causing the asthma. Removal of those proteins to which the patient is sensitive cannot always be expected to be successful, because the patient may be sensitive to the other proteins or have asthma also from other causes which are not so easily discovered.

A young lady sensitive to wheat grew progressively worse instead of better after giving up wheat, until I found that she was also sensitive to compound extract of liquorice, which was contained in a prescription I had given her.

Type 2.—Clinically many of these patients are exactly like those of the sensitive type, to which they will be transferred as fresh causes of sensitization are discovered.

Type 3.—These patients are often sensitive to feathers.

Type 4.—These patients have asthma at school, at home, and away on holiday, periodically, perhaps once a fortnight. Very often nothing will cure them but complete enucleation of the tonsils. More rarely the nidus of infection is to be found in a nasal sinus, an appendix, or even a single tooth abscess. One woman lost this type of asthma after the removal of an unhealthy uterus.

Types 5, 6, and 7 will be dealt with in some future article.

Type 8.—Patients of the periodic type suffer from four or five tremendous waves of asthma each year. The attack may take a month reaching its height and the same in going again. After a month of freedom the whole thing occurs over again.

Type 9.—These patients bring up some sputum every day. A patch of bronchitis is often found in the lungs. An autogenous vaccine from the sputum is often entirely successful in curing this somewhat rare type.

Type 10.—The only symptom peculiar to this type is that the patients have a high blood pressure, usually round 200. Apart from that we find them distributed here and there throughout all the other types, and the asthma should be treated quite independently of this symptom.

Type 11.—Of the whole series of 1,000, 22 per cent. had eczema in early life; 30 per cent. of the sensitive type had had eczema and 34 per cent. of those sensitive to foods.

Type 12.—Asthma in this type is due to an intake of too much food, especially the last thing at night, and insufficient exercise. Though the patient has asthma from other causes, a strict diet will do much to help the majority

of cases. This type is very fully described by Dr. James Adam of Glasgow in his books. I have many patients who keep entirely free by following his régime of starvation and exercise.

Type 13.—Typical of this is, of course, hay asthma. But I also find a number of patients who have pronounced asthma strictly limited to the months of August and September. Christmas is often a bad time; so many unusual proteins are met at that season. Recently I had a patient sensitive to holly.

Type 14.—A large number of patients are worse at the seaside, on clay soil, or in woods, especially if damp, or when in houses surrounded by trees.

Types 15, 16, and 17.—I hope to discuss these in a future article. Type 17 is quite the worst that I see. Naturally these patients never touch aspirin, but their asthma is almost continuous. They nearly all suffer from nasal polypi, a rare thing in ordinary asthmatics.

Results of Treatment.

In order to obtain statistics on the subject, 300 patients were written to. These had been seen by me between September, 1925, and December, 1926, and included every single case of asthma seen during that time. The answers received denoted the condition of the patient's health during the one to two years since coming to me. Replies were received from 223; of the rest two had died, both from strokes, and 14 could not be traced; the remainder have not answered. Many of the latter, to my knowledge, are abroad, and there is no reason to suppose the results obtained in these would be less favourable than from those who answered.

Replies received from 223 Cases.

(a) "No better"	...	...	...	...	44
(b) "A little better"	...	...	...	...	31
(c) "Better"	...	...	...	...	32
(d) "Much better"	...	...	...	...	17
(e) "Very much better indeed"	...	...	...	...	34
(f) "Practically free"; "Occasional attacks from overfeeding"; or "Perfectly well"	...	...	...	...	65

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Taking those patients in (e) and (f) their average age was 27 and the duration of their asthma thirteen years. The average age of (b), (c), and (d) was 37 years, with a duration of asthma for fifteen years. Those "no better", (a) were 40 years of age and had had asthma for seventeen years on the average.

In conclusion, and considering that these 300 cases written to were in series and not picked cases, and that by far the larger majority were only seen once, I think the results obtained are sufficient to prove that these new methods of treating asthma have more than justified their trial.

CONVULSIONS OCCURRING DURING SURGICAL ANAESTHESIA.

BY

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THAT patients completely under the influence of a general narcotic, both children and adults, should develop general convulsions, and die of them, is extraordinary, but several instances have come to my notice. I have been an anaesthetist for nine years, and have made over 11,000 administrations. The first case occurred only two and a half years ago; I have been able to cut short the last few. The seizure is epileptiform, comes on at any time during the progress of the operation, and may continue until the end and after. It may quite cease, but start again later on, perhaps after the patient has reached the ward (without, however, having regained consciousness). In other cases, after some time, it stops of its own accord, or in response to treatment.

It begins with twitching of the eyelids, or arms, or about the mouth, and extends rapidly all over the body, suddenly almost; but before this, I think, some jerkiness