An Address

ON

THE TREATMENT OF ALLERGIC DISEASES
IN GENERAL PRACTICE*

BY

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An individual is said to be "allergic" when he manifests an exaggerated susceptibility to substances innocuous to normal persons in the amounts commonly encountered. This hypersensitiveness or "allergy" on the part of the sufferer to many usually harmless articles commonly contained in his diet or environment manifests itself in such numerous and apparently diverse conditions as asthma, hay fever, eczema, urticaria, and migraine, as well as in an ever-increasing host of minor affections.

At first it was thought that only protein substances could act as "allergens" or originators of these reactions, but recent observations have shown that many non-protein factors, such as carbohydrates, drugs, and even physical agents, can lead to identical reactions. When we analyse these allergic responses we find that they usually originate in one of two ways, either as a definite inheritance of the predisposition to manifest a specific hypersensitiveness of some type to some substance, or acquired as the result of tissue damage or excessive irritation. During childhood the chief aetiological factor is the hereditary tendency, which can be demonstrated in from half to two-thirds of all cases; but in the majority of adults post-natal factors have been particularly severe and constant—for example, the continual association with a particular allergen either by occupation or by environment, combined possibly with extensive tissue trauma. Such a mode is exemplified in cases in which asthma has followed such lung damage as pneumonic processes complicating infections, in which a succeeding sensitization occurs to feather pillows or horsehair bedding on which the patient has lain during the illness, or in cases in which paroxysmal rhinorrhoea follows some nasal infection upon which a sensitization to dust, animal emanation, or face powder later develops. Such a division of cases, if possible, into primary (or hereditary) and secondary (acquired, or post-traumatic) is of great importance in determining the causative allergen, as the latter group is practically always inhalant or occupational in nature. For this reason a thorough history of the time and mode of onset is essential.

Allergic diseases have several characteristics in common. They are essentially periodic in nature, with apparent intervals of complete freedom. Symptoms generally have their onset during the night, or are most distressing during those hours. They have their maximum age at onset during childhood or adolescence—with the exception of hay fever—and each manifestation appears to have definite sex and seasonal variations. Besides the common history of allergic complaints obtainable in relatives or offspring, the patients usually give an account of some other allergic manifestation in their present or previous history. Finally, allergic diseases are greatly affected by varied states of health of the sufferer, and especially by indigestion, menstruation, and pregnancy; by intercurrent disease such as fevers, exanthemata, or following operations; by emotion, excitement, or exhaustion; or by a change of climate, locality, altitude, or environment.

Their treatment involves a very definite routine, so that reliance on one therapeutic agent for all cases, irrespective

of their aetiology, or the "shot-gun principle" of an assemblage of many in the hope that one will hit the mark, is to be deprecated. Again, the treatment sought from the specialist differs from that sought from the general practitioner, for whereas the latter is commonly called from his slumbers to relieve each acute exacerbation, the former is generally consulted during periods of relative freedom as to the means of preventing further relapses. I hope to show how the general practitioner can combine both functions.

ASTHMA

In the treatment of asthma, as in all allergic diseases, the first essential is to determine the cause. Often this will be indicated if a careful history is taken, but in other cases no clue is afforded, and skin tests, or the use of elimination diets, are advisable. But for the general practitioner skin tests are not practicable owing to their cost, the question of which to use, the number necessary, the technique required, and, in general, the impotency and worthlessness of proprietary preparations.

It is easier for the practitioner to make sure that the sufferer avoids the common agents that lead to attacks, which are either of an inhaled or ingested nature. The inhalants are the more common cause of allergic reactions at all ages except infancy, when foods predominate, and include feather, down, and horsehair pillows and bedding, animal pets, house dust, and orris root, the basis of all common cosmetics and toilet preparations. To remove these irritants the patient's pillow, mattress, bolster, and eiderdown should be filled with the best Java kapok, which can be obtained from the Witney Blanket Co. of Witney, Oxon. Animal pets should be kept out of the house, and always away from the sufferer, and children should not have toys stuffed with animal hair. House dust is difficult to eradicate; the bedroom should be well ventilated, with a minimum of ledges, carpets, curtains, and other dust-holding surfaces; the furniture should be scanty, and of the plain wooden type rather than upholstered; cleaning should be done with some electrical suction apparatus in preference to the common methods of dusting, which disperse the dust through the atmosphere; and, if cloths must be used, they should be damp, so that the dust can adhere, and the process should be carried out at times when the asthmatic is away from the house. Orris-root-free cosmetics may be obtained from Messrs. Boutalls, Ltd., chemists, 150, Southampton Row, London, W.C.1.

Dietetic Principles

If skin tests are not available to determine causative foods the simplest procedure for the practitioner to adopt is the prescription of a diet which is free from the common causes of asthma. In such a diet wheat, barley, and oats should be avoided as much as possible, and the remaining cereals should be employed after heating, puffing, or toasting. It should exclude egg and foods containing egg—especially egg-white. In many cases egg-yolk, if freed from white, can be used. It should avoid cow's milk in its natural state. The lactalbumin is commonly the part that leads to the reactions, and, as it is heat-coagulable, if the milk is well boiled, cooled, and the coagulated scum which forms removed, it can frequently be tolerated. Allergilac (Cow and Gate, Ltd.) is a lactalbumin-freed, half-cream, acidified dried milk that is applicable in cases of milk sensitivity. Condensed and evaporated milks can be used at times, as they have been modified to some extent by prolonged exposure to heat. Vegetable "milks," as can be made from soya bean flour, are useful at times. The diet should avoid beef, and especially pork, ham, bacon, and lard. It should also avoid many other less common foods that do not agree

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with asthmatics, such as shellfish, nuts, cocoa and chocolate, fruits, such as fresh strawberries, apple, and banana, and vegetables, such as beans and peas, potatoes, and tomatoes, cabbage, and celery. Such a basic diet for an asthmatic child is set out below, and it is easy to modify it for an asthmatic adult. The patient is placed on the diet until free from symptoms, then one of the excluded foods is added each few days until symptoms recur, when generally the latest addition is the causative food. But this does not mean that it is the sole food, for patients are generally multi-sensitive, so that the process must be continued until all the excluded foods are reintroduced except those that lead to reactions.

BASIC DIET FOR AN ASTHMATIC CHILD

Breakfast

Vitamins.—Some concentrated preparation as adexolin, ostelin, or radiostoleum. Orange juice, grape fruit.

Cereal.—This should be made with water, covered with prunes or other cooked fruits and their juice, and sweetened. The following are advised in this order of preference: tapioca, sago, arrowroot, rice (boiled, puffed, toasted flakes, or "crispies"), rye (crisps or toasted flakes), corn (flakes or "post-toasties").

In place of wheaten bread—ryvita crispbread, oatmeal biscuits, or very thin crisp toast. Buttered when cold, and covered with honey, treacle, or syrup.

Beverage.—Allergilac (Cow and Gate, Ltd.), or a small cup of warm, weak tea, with a small teaspoonful of condensed or evaporated milk.

Dinner

Soup.—A small quantity of clear, sieved bone and vegetable soup.

Meat.—Lamb chop, grilled or stewed, or roast lamb. Brains. Chicken or other poultry. Occasionally steamed or boiled fish.

Vegetables.—Sweet potato, turnip, carrot, sprouts, soya beans, squash, artichoke.

Salad.—Beetroot, lettuce, watercress, or asparagus tips covered with olive oil or lemon juice.

Sweets.—Baked or stewed pears, peaches, or apricots. Custard made from powder, not egg. Fruit jellies. Tapioca or other pudding, cooked with water, not milk. Dates or dried figs, soaked in water for forty-eight hours.

Tea

Soup.—Bone and vegetable or other clear soup.

Cereal.—Ryvita, oatmeal biscuits, or crisp toast, with butter or margarine and honey or seedless jam.

Sweet.—Stewed fruit or fruit jelly, or other simple dish prepared with gelatin.

Beverage.—Allergilac. Tea with condensed or evaporated milk.

Other Measures

Besides the avoidance or removal of common specific causes there are several contributory factors that need our attention. The sufferer should not be confined to bed except in the presence of fever, or progressive loss of weight, for confinement to house or bedrooms tends to prolong attacks. Asthmatics should always be allowed up and about when the weather is fine. A warm or tepid morning bath should be followed by a cold sponge and a brisk rubbing with a rough towel; hot evening baths commonly provoke attacks. In avoiding constipation drastic purgatives are not advisable, especially the common "once or twice a week" kind, which are usually taken overnight; an early morning saline, or glass of fruit juice, is preferable. Among poorer children the hot bath and dose of syrup of figs on a Friday night are the commonest causes of week-end asthma.

In addition to the avoidance of specific foods to which the patient is hypersensitive, the diet of the asthmatic patient should be regulated according to such complicating conditions as gastric acidity, flatulence, and over- or under-feeding. Gastric or rectal distension commonly

precipitates an attack, so should be avoided. Flatulent dyspepsia and chronic gastritis are common, and may be alleviated by ensuring thorough mastication, by gastric lavage each morning with a dilute solution of hydrogen peroxide, or by administering dilute hydrochloric acid by the mouth—one or two aklorep tablets, placed on the tongue and swallowed with a little water, immediately before meals (made by Roberts and Co., 76, New Bond Street, W.1). Three small, easily digested, simply compounded meals a day are best—a good early breakfast, a substantial hot midday meal, and a light early supper several hours before retiring should be the rule. Late meals, heavy meals, bulky diets, or mixed cooking should be avoided. No food or drink should be taken after supper, and especially not just before or after getting into bed.

Reflex irritation may precipitate asthmatic attacks, so that foci of infection should be removed. With regard to nasal abnormalities, it is essential to realize that they are commonly the result of allergic reactions, and rarely a primary cause. It is pitiful to hear of the number of useless operations that many asthmatics have had on their noses. Whilst infected tissues should be removed or drained, boggy tissues will usually subside following therapy based on allergic principles. It should be remembered that a function of the turbinates is to warm and moisten the inspired air, so that after their removal asthmatics are particularly prone to attacks from breathing cold air, and we are at a loss to help them further. Though occasionally asthmatics show evidence of endocrine dysfunction statistics bear out the fact that such dysfunction is rarely the primary cause of the asthma. In asthma commencing at the menopause thyroid and ovarian substance are frequently beneficial adjuvants. The common mental states that precipitate attacks of asthma are emotion, exertion, and excitement, so that these should be guarded against. Fussing and over-anxiety should be avoided, and attempts made to divert the sufferer's attention into other channels. Other less common psychic factors include grief, fear, mental depression, sex conflict, or worry.

The majority of asthmatics look forward with some apprehension to the night, and often when changing from a warm sitting-room to a cold bedroom an irritating cough is initiated. It is therefore advisable to give a sedative in the form of a strong linctus at bedtime each night. For children I order:

Compound tincture of camphor ...	20 minims
Tincture of stramonium ...	5 minims
Pure dextrose ...	30 grains
Oxymel of squill ...	15 minims
Chloroform water ...	to 2 drachms

At bedtime.

To adults I give:

Tincture of stramonium ...	15 minims
Syrup of Virginian prune...	} to 2 drachms
Syrup of codeine phosphate ...	

Early morning breathing exercises, especially of a counting, humming, or hissing type, are very beneficial if not continued up to the point of fatigue. They teach the sufferer to concentrate on breathing out rather than breathing in; they train the diaphragm and abdominal muscles to contract properly and harmoniously; and they counteract the tendency to chest deformity. Slow walking in the open air, at first on the flat and later on mild hills also assists. As regards climate, the sufferer should be shielded from extremes of temperature, draughts, cold winds, and fog. From experience it has been found that the east and south-eastern coasts are generally bad for sufferers as places of dwelling, or for convalescence or holidaying. The south and south-western coasts are preferable.

Desensitization and Drugs

If after this detailed routine has been carried out for a few months the patient has failed to improve appreciably then desensitization should be attempted. When employed it should be specific—that is, against the causative allergens—if possible. As these are most commonly inhalant, a mixture of the common feathers, hairs, dusts, and orris root is more likely to meet with success than is a shot in the dark, such as the use of a non-specific agent entails. In practice, both in adults and in children, I use this inhalant mixture solely and in very concentrated dosage. Among the non-specific agents Witte's No. 30 peptone is probably the best. Autohaemotherapy is successful occasionally. Tuberculin, milk, and vaccines are in general a waste of time and money. Physico-therapeutic methods, such as electrotherapy (diathermy), actinotherapy (ultra-violet and infra-red rays), and x-ray therapy should only be employed in rare cases where clinical and radiographic signs justify their use. Among the drugs ephedrine is widely used, and frequently lessens the severity of attacks, but never cures or entirely prevents them. Aspirin wards off attacks in some cases, but in others precipitates them. Glucose helps some cases. Calcium is of no value; many patients have idiosyncrasies to iodides.

SEASONAL HAY FEVER

In England the pollen cloud abounds from the end of May until the end of July, and corresponds principally with the period of pollination of the grasses. In contrast with other parts of the world trees and weeds are relatively unimportant factors. Flowers and cereals are often incriminated as causing symptoms, but the former are insect- not wind-pollinated, and the latter produce such large, heavy, sticky granules that they cannot be carried far by the wind. Hence, flowers and cereals can only be a cause of symptoms when the susceptible person is brought into contact with them either by occupation, in the adornment of the home, or by direct inhalation, as in actually smelling the flowers. The successful treatment of seasonal hay fever depends rather upon the recognition of all possible allergic causes than upon the detection of infections or structural alterations in the nose. No doubt the existence of the latter tends to accentuate hay fever symptoms when present, but if all the specific causes are recognized, and measures taken to render them void, the patient should be just as immune to symptoms in the summer as he is in the winter. In the absence of surgical intervention it is remarkable that patients can suffer from hay fever symptoms for many years without infection developing. The specific causes of hay fever include not only the pollens of the locality but also feather pillows, house dust, animal hairs, and orris root cosmetics. If the patient is sensitive to these latter inhalants their removal or substitution is essential, or desensitization necessary; and it is the recognition and removal of these other inhalant sensitizations that frequently makes the difference between a failure and a successful treatment.

The solutions of the common British pollens for testing and treatment may be obtained from Messrs. Duncan, Flockhart and Co. of 155, Farringdon Road, London, E.C.1. Skin tests are carried out with the common pollens of the district, and the solution for treatment should contain all the pollens to which the patient reacts. In the British Isles they are practically only grasses, though in special cases isolated reactions occur to trees and weeds. The most frequent reactions amongst the grasses occur to Yorkshire fog (*Holcus lanatus*), the meadow grasses (*Poa annua*, *pratensis*, and *trivialis*), the fescues (*Festuca ovina* and *elatior*), and to Timothy

grass (*Phleum pratense*). For those that cannot afford the time and expense of a prolonged change of environment in order to avoid the pollens to which they are sensitive, desensitization is a necessary therapeutic measure. Once symptoms have commenced one is forced to undertake co-seasonal treatment, and a satisfactory course can be put through by giving injections of increasing doses of pollen solution each two hours from 8 a.m. to 8 p.m. In known cases the pre-seasonal method is that usually adopted, the course of injections commencing about the beginning of March and continuing weekly until the beginning of June. Once the maximum dosage has been reached it is often advantageous to continue the treatment perennially. In such a case one injection of the maximum dose reached at the end of the season is continued each month, and the patient is kept permanently immune for about three years, by which time all sensitivity is frequently lost. The injections may be continued over a period of years without leading to any functional or organic disturbances. Two-thirds of the cases derive great benefit immediately from the treatment, provided that it is carried out with thoroughness. The common causes of failure include: incorrect diagnosis; improper treatment, due to impotent extracts, insufficient injections, or inadequate dosage; failure to recognize multiple sensitizations to factors other than pollens; and seasonal variations in the pollen crop, leading to an extreme abundance of pollen at a given time.

Besides the preventive measures outlined there are many palliative measures that bring great relief to sufferers during the season. The eyes can be relieved by the wearing of dark glasses, which cut out the glare and diminish the amount of pollen coming into contact with the conjunctival mucous membrane. The itching and burning of the conjunctival and nasal mucous membranes can be relieved by the following ointment:

Benzocaine ...	...	...	1 drachm
Ephedrine hydrochloride ...	...	...	10 grains
Sol. adrenaline hydrochloride B.P.	...	...	1 drachm
Soft white paraffin	...	...	to 2 ounces

or by the use of anesthone cream (Parke, Davis and Co.).

Internally, ephedrine hydrochloride in doses of half to three-quarters of a grain orally, night and morning, is often sufficient to control the spasms, but in acute exacerbations the hypodermic injection of adrenaline solution is often necessary. Hydrochloric acid has a beneficial effect if given internally; this is best given in tablet form, one aklorep tablet three times a day immediately before meals. Inhalations of carbonic acid gas through a sparklet apparatus, as suggested by Hurst, frequently lead to an immediate cessation of nasal symptoms. Cauterization and ionization of the nose do not generally lead to any permanent benefit, though at times they are useful as palliative measures. Vaccines and non-specific therapy are again generally a waste of time and money.

PERENNIAL HAY FEVER

In many cases hay fever symptoms are present more or less all the year round, and are not restricted to the months of May, June, and July. In these cases symptoms are due to causes other than pollens. These include the common inhalants already described; such foods as wheat, egg, milk, chocolate, potato, and beans; drugs, of which aspirin is the commonest; and bacteria, though infection is the exception rather than the rule. Two additional factors, occupation and climate, play an extremely important part. Bakers develop symptoms from contact with cereal flours, though they are innocuous when taken in food form by mouth. Housewives are affected by house dust and moulds, feather and horsehair bedding, animal

emanations, and orris root toilet preparations. Chemists and doctors are affected by the powder of ipecacuanha and sodium salicylate. Rubber, shoe, and chemical workers are also frequent sufferers. A cold, changeable climate more often causes symptoms than a warm, equable one, and discomfort is more often experienced in the winter than in the summer, and especially on going from a warm room into a cold one. The treatment of perennial hay fever may be palliative or curative. The palliative treatment includes such intranasal applications as the inhalation of carbonic acid gas, the use of adrenaline, ephedrine, and cocaine nasal sprays and ointments, or the application of silver nitrate. Nasal cauterization and zinc ionization meet with occasional success, usually only temporary. Intranasal operations generally afford very little relief in the absence of sepsis. The curative treatment demands the active removal of sensitization factors, as determined by skin tests, or their passive avoidance by a change of climate or occupation. Desensitization is frequently necessary, and in inhalant sensitizations a mixture of feathers, hairs, dusts, and orris root offers the best chance of cure. If specific therapy cannot be applied one may employ the less beneficial injections of peptone or auto-serotherapy. Vaccines, either autogenous or stock, very rarely lead to any improvement.

INFANTILE ECZEMA

The treatment of infantile eczema may be discussed under two headings: the treatment of the local reaction, and the treatment of the cause.

The treatment of the local reaction depends upon the site of the lesion and upon the presence or absence of infection. The lesions are generally at different stages on the face, scalp, and body; some parts are infected, and others not. The first duty is to cleanse the surfaces, and for this purpose soap-and-water should never be used. For mild cases olive oil will suffice, but in the more severe ones a starch poultice will achieve the optimum effect. If, when the crusts have been removed, sepsis is still present, a yellow oxide of mercury paste such as the following is advisable:

Yellow mercuric oxide	...	...	15 grains
Starch, in powder	...	...	2 drachms
Zinc oxide	...	...	2 drachms
Soft paraffin	...	...	to 1 ounce

When the surface is aseptic the most useful preparations to apply are crude coal tar (1/2 drachm to the ounce) in the chronic lichenified type, and zinc paste if the surfaces are acutely inflamed and angry. If there is excessive lichenification of the skin the addition of salicylic acid (as in Lassar's paste) is advisable. Old dressings and crusts should always be removed with warm olive oil before applying new. Of equal importance with the cleansing of the surfaces and the application of medicaments is the placing of the child, as well as the part, at rest, and the prevention of scratching. A dose of nepenthe or chloral should be given at night, the face kept covered with a mask, and the elbows splinted.

The treatment of the cause involves in the first place its determination. In infantile eczema two factors are involved: the primary sensitization, and the secondary predisposing factors. As regards sensitization, most eczematous infants are sensitive to egg, whether they have ever partaken of it or not, probably due to a sensitization *in utero*. Other food sensitizations depend to a large extent upon the feeding of the child at the time. During the breast-feeding period, egg, milk, cocoa, wheat, or cottonseed may be factors, owing to the habit of pregnant and nursing mothers supplementing their diet with milk

foods, ovaltine, cocoa, porridge, or lactagol. In such cases a careful history will frequently indicate the causative food. In the weaning stages milk protein becomes the chief offender, and in the majority of instances it is the lactalbumin fraction that is at fault. Fortunately, as already pointed out, this is a heat-coagulable protein, so that often a modified milk, such as condensed, evaporated, or acidified milk, can be used. As in cases of asthma, allergilac is very beneficial in milk-sensitive children. A similar milk can be prepared at home by boiling the milk for fifteen minutes, allowing it to cool, removing the scum, and acidifying by adding to each pint 40 minims of dilute hydrochloric acid (*B.P.*), drop by drop, whilst stirring. The requisite amount is just brought to blood heat for each feed. Children appear just as sensitive to goat's milk as to cow's. Vegetable "milk," such as may be made with soya bean flour, does not lead to such good results as the modified acidified milk. When the child commences on his baby diet such additional factors as wheat, oats, barley, bacon fat, orange, beef, potato, spinach, and corn arise. Finally, a large percentage do become, or are, sensitive to feather or horse-hair bedding, so it is as well to see that the best Java kapok is installed in the cot, and animal pets and toys stuffed with hair are excluded.

Apart from these primary factors, and especially when the condition has lasted for any length of time, the skin gets into such a state that it appears to be irritated by numerous secondary non-specific, non-allergenic causes, which include (a) such external irritants as woollen garments, trauma, infection, mechanical irritation, chemicals (such as strong soap and various therapeutic applications), changes in temperature, and exposure to winds; and (b) such internal derangements as accompany teething and overfeeding. Each of these factors must therefore be considered and nullified as far as possible.

PAPULAR URTICARIA

Probably the commonest type of urticaria met with in general practice is the papular urticaria of childhood. It is extremely prevalent in England, forming at least 10 to 20 per cent. of all out-patient skin cases at children's hospitals. Very few children escape without having it in some degree. Everyone is familiar with the pea-sized red blotch that appears on the covered parts of the body, in the centre of which a minute papule or vesico-papule later develops. The wheal soon disappears, but the papule lasts several days or weeks, especially if excoriated as the result of the intense nocturnal itching. Practically all children develop lesions before the age of 5 years, and ordinarily the condition disappears before puberty, periods of quiescence being followed by relapses which are more or less confined to the warmer months of the year. Many theories have been expressed as to the aetiology. It has been thought to be a disorder associated with dentition ("gum rash"); an ill effect of vaccination; a disorder of digestion, associated with constipation, improper feeding, rickets, or the ingestion of certain acid fruits and sweets; a result of improper clothing, uncleanness, or decomposition of sweat; a result of the bites of the flea, louse, or bed-bug; an association of worm infestations; and, finally, an allergic reaction to environment.

It is with trepidation that I suggest, as the result of studies in several hundred cases, a new aspect. In the majority of instances two factors are involved—one dietary, the other thermal. The dietary factor may be divided into two groups: (a) fats, especially bacon fat, which is a pronounced ingredient of a child's diet in this country; vegetable oils and fats, in Jewish children;

and cod-liver oil in a certain percentage of any nationality; and (b) common foods such as fish, egg, potato, oats, and chocolate in a small number of cases, as additional agents. Acid fruits and vegetables, though commonly incriminated, seem merely to aid the absorption of the noxious fat. The thermal factor is also an important one, for the lesions generally appear only in the warmer months of the year, when the child is warm in bed at night, or following a hot bath, after exercise, or following any of the feverish ailments that are common in early childhood. The lesions cease to appear in the majority of cases when the fats outlined are removed from the diet, and when care is taken not to let the child get overheated. Though a rhubarb and soda mixture is commonly given I find a pepsin and hydrochloric acid mixture more beneficial. The lesions may be treated with naphthol ointment (1 per cent.) or 2 drachms of solution of coal tar to 8 ounces of calamine lotion. If the lesions are infected probably the yellow oxide of mercury ointment, outlined in the treatment of infantile eczema, is the best.

ENURESIS

As enuresis is a common accompaniment of papular urticaria and many allergic conditions, and has ceased when treatment has influenced these other conditions, I was led to investigate many cases of enuresis that had persisted in spite of dietary and fluid restrictions, lifting at definite hours, and large doses of belladonna, and in which no urinary abnormalities could be detected. Many of these cases have been found sensitive to common foods, especially pig products, as well as to feather and horse-hair bedding. The removal of these irritants, together with the administration of large doses of ephedrine by mouth, such as 1/2 grain at the child's bedtime (repeated when the mother goes to bed) nightly for some months, rapidly cures the complaint. The sphincter-tightening effect of ephedrine on the bladder is well recognized among asthmatics. As soon as any toxic effects of the drug such as vomiting, tachycardia, insomnia, or stupor are experienced, the dose is halved.

MIGRAINE

Migraine, or sick headache, is extremely common in members of allergic families, and especially in the mothers of asthmatic children. Besides these hereditary associations there is abundant evidence in favour of many cases of migraine having an allergic basis. That allergic reactions can occur in the central nervous system is shown by the cerebral symptoms that frequently follow injections of therapeutic serums. In addition, many cases give positive skin reactions, and the headaches cease when the causative allergens are removed. In the attack the patient is forced to lie down, and the room should be darkened, and an ice cap applied to the head. The bowels should be well opened with magnesium or sodium sulphate. Probably one of the best drugs to relieve the headache is compral (Bayer and Co.), three tablets being given each six hours. Others favour bromide and chloral, sodium luminal, caffeine, and veramon. In the preventive treatment the first duty is to remove specific allergens. The commonest are foods, and include milk, wheat, eggs, pork, chocolate, nuts, peas, and beans. A few sufferers are sensitive to inhalants, such as feathers and animal hairs. Biochemical investigations have indicated that migrainous attacks are associated with a change in the blood toward the alkaline side, so that this should be combated with a ketogenic diet, with marked restriction of carbohydrates, and hydrochloric acid by mouth. In cases markedly affected by menstruation, organotherapy is indicated in addition, such as pituitary, ovarian, and thyroid preparations.

OTORRHOEA *

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ROYAL INFIRMARY

Suppurative otitis media† begins in early life. Except as a complication of severe influenza, a first attack in adult life is uncommon. The importance of the very early years is brought out in the following table of ages of first attack in a consecutive series of cases. As a check on the "sample," it is only necessary to compare the corresponding figures for a quite distinct series of patients

Age Incidence of Otitis Media

Age	First Attack of Otitis Media		Operation for First Attack	
	Cases	Cases per Year of Age Group	Cases	Cases per Year of Age Group
0-1	18	18.0	9	9.0
1-2	33	33.0	14	3.5
2-5	60	20.0		
5-10	101	20.0	20	4.0
10-15	65	13.0	17	3.4
15-20	35	7.0	8	1.6
20-30	14	1.4	5	0.5
Over 30	13	0.4	3	0.1

for whom a mastoid operation was performed during a first attack of otitis¹: the incidence was much greater during the first year than at any subsequent period, and in my experience this is constant. In neither series was there an abnormal proportion of influenzal otitis.

Two-thirds of first attacks of otitis occur between the ages of 3 and 14. Scarlet fever and measles, in conjunction with "adenoids," furnish the obvious explanation. But the incidence is as high during the first year of life,

* Delivered at a meeting of the Bath, Bristol, and Somerset Branch of the British Medical Association, January 25th, 1933.
† Throughout this paper suppurative otitis media is implied.