out of the hospital. At times, of course, we do get the patient away from the family when we feel that is necessary. However, if we take him away from the family and isolate him in a hospital and get him to react better there, when we send him home he often slips back.

If we can treat them at home and teach them to stand up to the mother-in-law or mother, and sometimes get enough strength on their own to throw the intruders out of the house (as some of our patients do), then we have accomplished something with the patient.

Actually, what mental illness consists of mostly is a matter of attitude on the part of the patient. We aim at a radical cure of these conditions, not just amelioration, and we believe the patients suffering from such diseases or reactions can be cured by proper treatment. I do not think they are diseases in the sense of being an infection or anything of that kind, but patients with such behavior disturbances, or (to use the terms Dr. Cleckley objects to) hysteria, schizophrenia, manic depressive reactions, and so on, with recurrent illnesses or prolonged illnesses, can be radically cured, put back in the community at not only a better level than they had before, but a surprisingly high level, and with surprisingly little danger of their getting sick again.

The reason why mental illness tended to be recurrent and patients tended to relapse after hospital treatment a few years ago was that we did not understand nearly so much about what made people sick then as we do now. I think we know what makes them sick and I think we know how to teach them to live so they will not be sick again, not just to live with the symptoms, not to avoid situations, but to handle the situations that have made them ill.

I was interested in what Dr. Selinsky had to say about socialized medicine in England, and the less scientific type of practice as more and more cases are forced upon the psychiatrist. There are tremendous numbers of patients that are ill psychiatrically. Some of them have minor disturbances; some of them get well very rapidly. I remember one who came into my office for a consultation one morning. She had a depression, and I tried to get across to her even in that first interview some idea of what we are driving at in facing her problem. She had been avoiding her problem, allowing her family to impose upon her, including her husband who was a very important factor.

She did not catch on, but she came into a group therapy session a little later, having waited for that, and in the group session she heard some of the other patients express feelings about their problems. She caught on then and, in about the middle of the group session, jumped up and said, "So I have got to get mad, have I? I am getting mad right now," and she "blessed" me out, she "blessed" out the other patients in the group therapy session, and she walked out of the group therapy session when it closed, her husband was there, and she started to "bless" him out. He said, "You can't do that," and she said, "The doctor told me to get this off my chest."

"He didn't mean here; he meant in there."

"No, he meant right where I was, to go ahead and get it out."

She never had to come back and she has gotten along to this day.

We see a tremendous number of patients, more than we should. We cannot get enough help for them. What are we going to do? Are we going to refuse to see people who are ill and need our help? Are we going to leave them to people who are not competent to take care of them? Are we going to send them all away to private sanitoria? Or are we going to do the best we can?

CEREBRAL ALLERGY*

By HAL M. DAVISON, M.D.
Atlanta, Georgia

For a long time it has been noted that symptoms of bizarre and unusual cerebral disturbances occur in allergic patients. During the early years of our allergic studies, it was assumed that these cerebral symptoms coincided with the allergic reactions purely by chance. In some patients, organic lesions, such as tumors, were suspected, and in others, hysteria and neuroses were diagnosed. While in some instances these disturbances occurred alone, nearly always they appeared coincidentally with one or more common allergic disorders, such as asthma, hay fever, urticaria, angioedema, or eczema. Later it was observed that when the allergic symptoms improved, the cerebral symptoms improved also.

Further observations and experiments showed that, at times, the cerebral symptoms could be produced at will by feeding patients certain foods. It was also observed that in rarer instances, the ingestion of a drug, the inhalation of powdered substances, or even odors would produce these symptoms.

The first patient with a cerebral manifestation possibly due to allergy was observed in 1933. He was a young man of eighteen suffering from recurring attacks of unconsciousness

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and his illness had been tentatively diagnosed as cerebral tumor. These attacks, however, were relieved by injections of calcium chloride and epinephrine. Unfortunately, we did not have an opportunity to study this patient thoroughly.

Our second patient suffering from cerebral allergy and observed in 1935 was a man of 37 years, a lawyer by profession. He described the following symptoms as occurring sequence: a slight headache, urticaria, and itching, white spots in his field of vision, flickers like dust in the sunlight, blurred vision and the inability to focus properly. Along with this the patient would become unable to speak plainly, or to say what he desired to express. Some times he would say practically the opposite of what he intended. He might try to say, "Yonder goes Mr. Jones," but actually say, "Here comes Mrs. Smith." At times he would almost lose consciousness so that he was forced to sit down on the street. He knew that the above symptoms were caused by the ingestion of eggs, crabs, oysters, and strawberries. No attacks would appear if these foods were avoided.

Our third patient was a young lady of sixteen, who had left home to go to school in another town. There she developed peculiar symptoms which were suspected of being either a beginning epilepsy, or purely a nervous condition produced by leaving home. However, the patient's neurologic examination was completely negative and she said that she was not nervous and liked the school very much. Her attacks usually came on in the classroom, but might occur anywhere. The symptoms were as follows: the patient would know what she desired to say, but would be either completely unable to speak, or would say things backward, getting things mixed up. This was followed by nausea and a blinding headache and was nearly always accompanied by numbness in one hand, one foot, or at times, one whole side of the body. At other times, the numbness would occur on one-half of the face and one-half of the tongue. Although the patient had not been aware of any food sensitivity, markedly positive skin reactions were obtained both to foods and inhalants. There was also a marked family history of allergy. This patient had no more attacks after she was placed on allergic treatment.

Since January, 1935, approximately 5,000 patients have been studied in our office from the standpoint of allergy. From this number, we have reviewed the case reports of 428 patients with possible cerebral allergy, and from these 428, we have selected 87 cases for the present report. Omitted from this study are cases of epilepsy, migraine, and headache alone. Included are definite mental and emotional disturbances, personality changes, mechanical or neurologic disturbances, disturbances about the eyes, and those of sight, and speech changes. A family history of allergy has been present in 72 of these patients and absent in 15.

Either psychosomatic factors, or the menopause, have been present as possible precipitating or accentuating causes in fourteen cases. In seven patients, there has been a possibility of a beginning epilepsy. Twenty-six of these eighty-seven patients were male and sixty-one female. There were five patients in the first decade, eleven in the second, eighteen in the third, twenty-eight in the fourth, fifteen in the fifth, eight in the sixth, one in the seventh, and one in the eighth decade. The patients' ages varied from two years to eighty.

Fifty of these patients have clinically proven food sensitivity, eighty-three have given positive reactions to skin tests, two were negative, and two were not tested. In only four of these patients were symptoms of cerebral allergy present alone; in the other eighty-three cases, from one to seven other allergic manifestations were present. These were usually: asthma, hay fever, urticaria, angioedema, eczema, and either gastro-intestinal or genito-urinary manifestations.

The effect of inhalants on cerebral allergy in these patients has not been definitely established. However, injections of extracts of inhalants have apparently aided in relieving symptoms in some of these patients. In a few cases the patients themselves were sure that the inhalation of food odors, particularly those of onion or cooked cabbage, were instrumental in producing attacks.

Mental symptoms[13] were present in thirty patients, the most common being sleepiness, which in some instances progressed to a state of stupor. One of the first patients we observed with this condition was a prominent ear,

nose, and throat specialist, who would become so sleepy about four in the afternoon that he was hardly able to take care of his patients. Clinical tests proved that this condition was caused by milk. When he omitted milk from the diet, the doctor had absolutely no trouble in going through his day's work, but when he took any milk beyond the amount found in foods such as bread, this condition returned.

There were cases of marked insomnia. Other patients described the effect of taking certain foods as "sluggishness, or slow thinking," "difficulty in thinking," "tardiness of thought," "dullness of thought," "confusion in thinking," "inability to concentrate," "partial black out," "a sense of unreality, like living in a dream." Two of the patients complained of childish compulsions.

In observing these patients, it was not always easy to draw the line between what one might term emotional disturbances and personality changes.[7] These occurred either alone or mixed in fifty-seven out of eighty-seven patients. The terms appearing below describe either the symptoms that we actually observed ourselves in the patients, or were used by the patients themselves: "Increase in temper," "mean," "sulky," "irritable," "impatient," "quarrelsome," "can't be pleased," "can't cooperate with anyone about anything," "sensitive," "easily hurt," "crying with or without cause," "unhappy," "morbid," "depressed," "worries," "contemplates suicide," "feels terrible," "restless," "tense," "nervous and easily upset," "jumpy," "jerky," "chews clothes," "nightmares," "loss of pride," "don't care," "fears, with a question about what and why," "a feeling of wanting to remain in bed all the time," "jumpy and jittery," "can't make decisions." In discussing temper, a mother said that when her young son was in one of these moods and was told anything to do, "something would go all over him" and he would go into a tantrum.

A high school girl student complained of extreme lassitude, with a loss of pride in her work in school, of loss of interest in dates, and loss of ability to concentrate and study properly. The removal of milk from this girl's diet produced a marked change within three days, and these symptoms did not return unless milk was again included in the diet.

Other children showed some of the various emotional or personality changes[11] mentioned above, with the resulting inability to cooperate either in school or at home. When foods to which they were sensitive were removed from the diet, they became normal, happy, cooperative children.

In our attempt to deal with psychosomatic factors in allergy, we have explained to our patients something about the formation of a philosophy of life. A lady said: "It is easy for me to follow your philosophy of life when I am on a diet, but impossible when I am not."

Fifty-seven patients presented some of the following neurologic symptoms:

Paresthesias.—Tingling, crawling, itching, numbness, indefinite pain, sensation of burning.
Muscular.—Twitchings, quiverings, jerking, sense of drawing, weakness, paralyses.
General.—Faintness, fainting, partial loss of consciousness, total loss of consciousness, with or without convulsions. Many of these also complained of headaches.

Disturbances of sight, or other disturbances about the eyes, occurred in thirty patients. These disturbances were described as follows: the appearance of wheels, rings, zebra stripes, flashes of light, flickers like particles of dust in shafts of sunlight, spots and dots, white or black, and the sense of objects receding, as if on a train moving away. In addition, there occurred a sensation of a shadow's being on part of the sight, scotomata, hemianopsia, diplopia, blurring, fogginess, or haziness of vision, inability to focus, transient paralyses of the extrinsic eye muscles, sense of drawing or of twitching of the eye muscles, a sense of vibration in the eye, marked photophobia, and in one patient, distorted vision.

Definite speech changes occurred in fifteen patients. Some of these would know what they wished to say, but could not speak, or were unable to control their words and would scramble them. Others wished to say one thing and actually said another. In addition to this, there was thickness of enunciation, or "fuzziness" of enunciation, as described by one patient. In one individual there was definite stuttering dur-

ing an attack. In others there was slow and difficult coordination in speaking, apparently due more to inability to think, rather than to enunciate words. In other cases the patient would forget what he wanted to say.

In thirty-five patients, there occurred one or more of the miscellaneous manifestations listed below:

Vertigo

Instability on feet, with poor muscular control, without vertigo

Marked general weakness

Marked fatigue

Cold or hot flashes over part, or all of the body

In a patient what appeared to be allergic shock, with paleness, cyanosis, fast weak pulse, the attack being relieved by an injection of epinephrine

In another patient a shock reaction took place very similar to that occurring in hyperinsulinism and consisting of weakness, nervousness, tremor, and marked sweating. This reaction could be reproduced by the ingestion of eggs

Of the above eighty-seven patients, forty-nine have either been totally relieved, or markedly improved by allergic management. Six have been moderately improved, thirteen unimproved, and nineteen are either still under treatment, or could not be reached to determine their present status.

The ten most important foods that have been incriminated in this series, in order of their importance, are: milk, chocolate, onion, cabbage, pork, eggs, fish and shellfish, tomatoes, nuts, and apples. Proof that the above-mentioned cerebral reactions are due to allergy is clinical, and any discussion concerning the mechanism of their production must be hypothetical. It has already been proven that allergy can affect any tissue, or any organ of the whole body. These reactions may be produced from a vascular standpoint by a contraction of blood vessels and a reduction of the blood supply to a certain part of the brain, by a dilatation and marked increase of the blood supply, or by angiodema. It is not inconceivable that there may be allergic reactions in the brain cells themselves.[1 5 6 8 9 12] Experimental work has shown that a localized cerebral anaphylactic reaction, or allergic reaction, is possible in the brain of dogs, rabbits, monkeys, and of guinea pigs. There have been a few clinical reports[2 3 4 9 10] of proven cases. Clinical proof that the above-mentioned symptoms may be, and in some cases are, definitely due to food sensitivity, offers relief to many patients who formerly could not be treated successfully.

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DISCUSSION (*Abstract*)

Dr. Davison.—Comment, if you will, on whether you think we are safe in trying the clinical food test on people with cerebral allergy.

Dr. Herbert J. Rinkel, Kansas City, Mo.—I should answer Dr. Davison's question, concerning any danger in performing individual tests, in this manner. First, over a period of sixteen years' time in which over fifty thousand individual tests have been made with my published technics, there have been only a few reactions which were dramatic and none which have been alarming.

If we think about this problem for a moment, we must realize that, whether we do the diagnosing or whether we allow the patient to do it for us, all diagnoses of food allergy are made by the eating of the food under such conditions as could precipitate clear cut symptoms and, therefore, we must choose which is the lesser of two evils: to allow the case to go undiagnosed and have the patient accidentally perform the test upon himself, or should we, as physicians, do it under controlled conditions in our office.

Sometimes the symptoms produced as a result of eating a food under test conditions are quite severe. In one instance, a patient whose migraine had been of such severity as to suggest a brain tumor with operation by a very competent neurologist and neuro-

logical surgeon, we were able to produce homonymous hemianopsia by the deliberate feeding of egg. Other foods that produced the headache were beef, grapes, beets and oranges. There were no untoward effects as a result of the egg test.

The patients in whom we produced a condition of shock or a physical collapse, who became unconscious temporarily, are worth reporting. One was a patient who knew that corn and egg agreed with her because every time she ate them she felt better. She collapsed forty minutes after eating the egg and twenty minutes after eating the corn under test conditions. Subsequently it was found that these were the only two foods which disagreed with her.

This should emphasize the value to be placed upon a history given by the patient, that a certain food is agreeable. In taking histories of these conditions, when a patient tells you a certain food always improves the symptoms, one should consider the patient allergic to that particular food until this has been disproved by deliberate, ingestive trial.

Changes in the personality mentioned by Dr. Davison are seen most clearly in childen but they do occur in adults. One of our best cases was due to beet sugar allergy, the beet sugar being obtained in ice cream. Today nearly all soda fountain drinks have beet sugar in them for it is cheaper than any other sugar at this particular time.

Sugar sensitization is common in the case of beet and corn, but rare to cane sugar, in our experience.

I did not see wheat or corn on Dr. Davison's list of specific foods. His chart emphasizes a point I should like to discuss, namely: that the food problem varies in the different geographic locations of the United States. One should not assume that everybody eats the same as they do in Kansas City. Therefore, diagnostic tests based upon probability should and necessarily do vary in different communities.

Dr. G. Frederick Hiebert, St. Petersburg, Fla.—No system of the body is immune to allergic reactions. The experimental work of Lasowsky, Kopeloff, Plaut, Jervis, and many others has demonstrated that nervous tissue is as capable of being a shock organ as the nasal mucous membrane, skin, or lungs. Practically any neurologic lesion and many psychic states can be simulated by central allergic reactions. In only a small group have parenchymous changes been found, pointing to the fact that a reversible reaction has occurred.

Many papers have been written both here and abroad reporting cases demonstrating central nervous system manifestations with sensitization with single or multiple allergens as the etiologic factor. The bulk of the literature deals with the relationship of allergy to migraine and epilepsy, and the most hard-headed skeptics are beginning to take an active interest or at least agree that sensitization is a possibility in the above mentioned neurologic manifestations. Since Horton's excellent study of histamine cephalgia and Rich's experimental work on the collaginous diseases in which he showed that the underlying early pathology of rheumatic fever, serum disease, sulfonamide reactions, periarteritis nodosa, and lupus erythematous are indistinguishable to the practised eye, the so-called pure skeptic internists have food for thought before they may criticize the conservative allergist.

Dr. Davison has gone one step further in emphasizing the need to consider the possibility of protein sensitization as a cause for psychic changes in the allergic patient. We have seen or read reports of personality changes for the better in a successfully treated allergic victim. Usually this followed treating the patient for another allergic manifestation and observation of the psychic change was coincidental. Clark reports the case of a thirteen-year-old boy who was expelled from school as incorrigible. Following proper treatment for his hay fever, the child became happy and got along well with his fellow playmates. If this was the only time that we saw a personality change, that is, in a patient relieved of a miserable condition at the best (hay fever or asthma), we might justifiably sit back and read or listen to a paper of this nature with our tongues in our cheeks. The same might be said of any organic illness. Once relieved of the condition, the patient necessarily has a better mental outlook. We certainly should not attribute concomitant irritability to allergy. The adage that a healthy child is a happy child still holds.

However, when seasonal somnolence occurs without any other accompanying allergic manifestations, as reported by Sternberg, which is relieved by specific pollen therapy; or when a high strung, nervous, unruly, or disagreeable child without concomitant allergic manifestations, as reported by Shannon, changes to a happy, agreeable, and obedient child after a dietary item, particularly wheat, is removed, perhaps we have reason to pause and reflect upon the bizarre case with mental aberrations. The key could be in our own diagnostic armamentarium.

Dr. J. Warrick Thomas, Richmond, Va.—I have a patient in mind, a boy of thirteen, the son of a physician, who had marked urticaria and when he had it he would become quite stubborn, incorrigible, and unreasonable.

He happened to be in private school, and his average in class was from 96 to 100, but every time he had a flare-up of the allergy, he made a very low grade. His thoughts were incoherent, and he was the worst problem in school. It was only when he had this allergy under control that he was able to do his best work.

Dr. Davison (closing).—Wheat was well down the list, and corn four or five foods further down. My observations are not at all so accurate as Dr. Rinkel's, which will come under "statistics." Our figures are based on observations by the patients themselves, in most instances repeated for accuracy, and observations that we ourselves have made on 428 cases. All of our clinical food tests have been done at home, since, in many instances, our patients live quite a distance from our office, and the clinical food tests require much time.