ALLERGY, AND OTHER STRESS-CONDITIONED ILLNESS

A SUGGESTED ASSOCIATION WITH OBSOLETE AUTONOMIC DEFENCE REFLEXES*

BY

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"The figure of Hysteria shrinks in proportion as the various forms of organic disease acquire greater solidity and sharper definition."

Thomas Buzzard (1891) spoke for us all, voicing discontent with his knowledge of neurosis. The physiological approach as a basis for interpreting neurotic illness is relatively a recent chapter of medicine; and evolutionary truths, though long accepted, have been slow in finding application in this field.

In recent papers (Harper, 1948, 1951) I have indicated ways in which it may be of value, in the study of this protean group of diseases, to look back into geological time, during which were evolved the fundamental defence reflexes, upon the continued efficiency of which depended the perpetuation of species and indeed, ultimately, the very appearance in the world of modern man. The advent of civilization reduced the immediate risks of man's environment and permitted the survival and reproduction of human beings who were inferior or primitive in their reaction to danger, though otherwise they might have qualities of high social value. The work of the Pavlov school (Pavlov, 1928), Davidenkoff (1947), and of Kretschmer (1926) suggested that primitive characters in the nervous system may be linked to certain aspects of neurosis. This association is difficult to establish, because the nervous system is difficult to observe; but, both the skin and the nervous system being derived from ectoderm, the presence of primitive structures in the skin probably indicates that the nervous system also has its share of primitive characters. Indeed, Wood Jones (1939) regards the skin from the point of view of its anatomy as "the external nervous system."

The hypothesis to be presented in the present paper is that in times of stress "morbid echoes" of obsolete defence reflexes may be manifested which are parallel to, if not co-existent with, those anatomical and histological vestiges which link man with long-forgotten ancestors. I now discuss, therefore, in greater detail an example from the clinical evidence that has led me to believe that in allergic illness a significant part is played by vestigial nervous defence paths, now of little or no importance in the normal physiology of man, though in times of stress still available in varying degrees.

A convenient but, of course, artificially simplified example of a reflex defence mechanism of the type under consideration is provided by olfaction. During long eras the efficient olfactory resolution of many biological problems was vital to the continuation of the race. Olfaction became supplanted in the recent evolutionary past only when the development of other senses led to its relegation to the very minor role seen in man. It would be remarkable, in my view, if we did not find to-day manifest in times of stress physiological

vestiges of this and similar obsolete defence reflexes, just as in the field of anatomy links with the reptile and the amphibian forebears of man can be demonstrated through structures such as moles and naevi in human skin (Laidlaw and Murray, 1933; Purdy Stout, 1948). The comparative anatomical aspects of the supernumerary nipple have been well reviewed by De Cholnoky (1939), who supports the view that such structures are atavistic, dating to the earlier mammalian history of man.

One must recognize the brief period of time since man became a social being, and allow the mind to dwell on the vast ages of evolutionary development under the extreme rigours of natural selection. This will help us to realize that it was but yesterday that the growing point of evolution seemed to shift, and the brain type of man's predatory ancestors to change in some subtle way, to develop and enshrine those social qualities that, dim though at times they may seem, mark him out as unique in Nature. It should be realized that, according to modern authorities, the era of reptilian dominance in the world was probably 160 million years, and this must have left indelible imprints on many, perhaps unsuspected, aspects of mammalian physiology. Little is known of the physiology of those members of the reptile family which, through evolution, developed ultimately into the mammalia; it is, however, generally believed that at a relatively early date they were divided from the branch that was to give rise to the reptiles as we know them to-day. The view here presented is that certain morbid conditions will be seen in truer perspective if such evolutionary factors be included in their study.

Swinton (1934) has written: "The present rests conformably on the past, and the future on both." It is upon the last part of this sentence that I would dwell, because in at least one clinical group a confusion is, as I see it, tending to obscure the physiological foundations upon which wise and realistic treatment must rest. Those ailments so loosely classed as "the functional nervous disorders," including as they do many in which autonomic imbalance is a marked feature, have often lacked this foundation—partly because the liaison between brain and mind must, in the present state of our knowledge, be intuitive only. We believe that this liaison exists, but of what is its exact nature at present we are in ignorance. It is now, however, recognized (Fulton, 1949) that the autonomic system has its fundamental anatomical representation in the human frontal areas, and that the secretory and nervous activities of the thalamic portions of the diencephalon are closely integrated with the somatic mechanisms of defence and attack (Best and Taylor, 1950). The physiological implications of these facts, although as yet not fully understood, are undoubtedly of importance in the consideration of the clinical material to be discussed.

The Clinical Problem in Childhood†

In this paper certain clinical aspects of a small representative group of asthmatic and allergic children living under conditions especially favourable for observation will be outlined. Every physician of wide experience in this field will recall to mind different, but parallel, examples from his own practice.

†A summary of the clinical records of each child mentioned, often covering a period of years, is available on application to the Editor or the author.

*Based on the Charles Oliver Hawthorne Clinical Prize Essay, 1952.

A list of specific treatments for asthma would be wearisome to read, as it would include such a formidable number of diverse procedures and drugs. A review of the effects of climate on bronchial asthma would be quite bewildering. The suggested causes of asthma are so wide that a list would almost cease to have a meaning; and yet, in my experience, there are aspects of this disease that are capable of remarkable unification. Especially is it the case when this often most complex illness is studied in childhood, before the years of suffering have produced secondary and often irreversible complications which may obscure the asthmatic syndrome itself. I refer to such conditions as bronchiectasis, emphysema, chronic bronchitis, and the severe hypertrophic changes associated with the frequently coexisting paranasal sinusitis and chronic nasal catarrh.

At the family school in which these children live certain limitations exist; but it has had outstanding characteristics that have made this research possible. The principals are a sensible married couple with children of their own, and were without previous experience of running a school. Their staff are chosen for a satisfactory attitude to the care of children rather than with any regard to special nursing or dietetic qualifications. Every effort is made to bring the children up on wholesome "large family" lines with an absence of fuss or strain, and with as little emphasis as possible on precautions against infection or the giving of medicines of any kind. This family school differs from many in that the majority of children live there for long periods during their parents' absence overseas, returning for holidays after they have gone to boarding-schools. A smaller number of children are at the school in term time only in the normal way. The total number of children is about twenty normal and healthy youngsters.

It has been possible to observe under almost ideal conditions the progress of a score of children of the type under consideration during the years spent by them in this community.

With regard to matters of health, everything possible is done to encourage an atmosphere in which good health is regarded as natural and normal, and any illness as something which will be of short duration and will respond to treatment. Medical examinations are a normal part of the school routine, and medical supervision, though close, has been unobtrusive. Serious illness is usually nursed in the children's ward of the local hospital. There has never been a resident trained nurse at this school: responsibility for illness has been taken on family lines by the principal, who has an unusual insight into the sort of conditions that make a child feel free and secure and certain of justice and affection. The regime is robust and hardy, and no fads exist; but the children obviously enjoy the time they spend at this school, and are eager to return to or to spend holidays in the community, which lives in beautiful country surroundings with good gardens and grounds. Ages vary from quite young children to about 14 years, or older during the holidays, when the atmosphere of the school seems just a happy and independent family group of large size.

The staff are taught never to show any sign of anxiety whatever symptoms a child may manifest, to take a great interest in the children's normal activities and achievements, both in and out of the schoolroom; but to show little, or none, in any symptoms or complaints they may produce, apart from seeing that they are given such treatment as may be ordered.

This attitude is carried into the sick-room, where care is taken to see that when a neurotic or allergic child becomes ill he is allowed to realize that as soon as he is well enough to get up life will be much more interesting than it is in bed. For this reason children are not entertained in bed, and are not given more than a minimum of books and occupations; but are told of the things the others are doing downstairs and out of doors. It has been found that this can be a very important factor in nursing the child who has been encouraged to regard himself as delicate,

and who has reached the stage where at times he prefers life in bed with every possible attention and many toys to living in the playroom where he has to adjust himself to the demands of life among the other children, who, as has been mentioned, are mostly normal and healthy.

During recent years there has been a small proportion of severely allergic children at this family school who, previous to arrival, had had much treatment without success. Such children arrive at the school with some or, in certain cases, all of the apparatus and regimen so familiar to everyone who has had to deal with this most difficult and frustrating type of illness. Special bedding, sprays, nose drops, ear drops for the not infrequently associated otitis media, are prominent, together with a compilation of the causes, climatic and dietetic, that have produced attacks. Often copies of prescriptions from medical authorities on allergy and ampoules for frequent injection accompany the child.

For several years it has become the practice at this school to cease every drug and prohibition on arrival, and it is found that the child settles down easily, and soon loses the asthmatic or other allergic manifestations, however severe or protracted the condition may have been. It would seem that the threshold at which an attack can be produced has been raised to a significant degree. The turgescence of the olfactory mucous membrane found in this catarrhal type of child rapidly subsides, the obstructive threat to adequate sinus drainage is removed, and the paranasal sinus infections that seem to be an almost constant accompaniment of the asthmatic diathesis quickly clear up. As a result, the existing ear discharges cease and there is a noticeable increase in well-being that is apparent to everyone, and most of all to the child itself. Self-confidence rapidly increases as the child finds that things can be eaten, and done, without producing any attack. Colds which in the past have so frequently produced asthma, often complicated by acute sinus infection and bronchitis, are now only colds and run a normal course.

Now, it is my experience that in this little community the diverse manifestations of allergic disease are unified in that the entire syndrome with its complications improves dramatically, and the rare attacks that occur while the child is within its influence can usually be traced to some threat to security, such as the mishandling or anxious treatment of the children by a member of the staff during the temporary absence of the principal. Another fertile cause of relapse is the arrival of one of the parents or relatives. Such an instance is recorded when two asthmatic children, a brother and sister from a highly allergic family, were taken for a holiday by their parents, who had returned from abroad. These children had long forgotten their sprays and drops and tablets, going away as healthy children. After a few days the school received a request for the sprays, and shortly after another letter reported that both children had asthma and bronchitis and, once again, discharging ears.

The notes of another asthmatic child, a girl who lived at this family school but who went as a boarder to a school with a "health-conscious" staff, are of interest. Each term the asthmatic syndrome would return, although in the holidays at the family school every symptom cleared up. The records show that at the boarding school the girl was regarded as delicate because her health was constantly threatened by the asthma. She brought back a letter after one term, during which the condition had been especially bad, urging the principal of the family school not to send the girl's breeches back the next term as she was not fit to ride on account of the asthma. Yet within a few days this same child was joining the riding party of the family school, walking a mile to the bus, travelling five miles, walking to the stables another mile, mostly uphill, riding, making the return journey, and keeping up well with normal children of her own age. The possibility of climate as the causative factor in this case can be ruled out, as the child's boarding-school is not far distant and the climate in no material way different. A feeling of security and absence of fear and stress are all that this community I describe can provide; no drugs, no fussing nurse, lots of healthy normal young companions, a sane and confident

attitude to illness and accident—these alone are the healing factors that unify the often bizarre and complex pathology of the allergic neurosis from which this child and her family had suffered.

Another child arrived at this family school with a description of how cold air would precipitate a severe attack of asthma. This same child, sleeping in an unheated bedroom, endured the severe frost of 1947 and played daily with uproarious enjoyment in the snow, and was never in better health.

The above are examples only of a consistent pattern of progress observed by me in the group of allergic children that have passed through this community. Without drugs, without nursing, without doctoring for their allergy, their problems have largely ceased to exist so long as there has been no introduction from without, or from within, of stress, anxiety, or insecurity. Bronchial asthma and associated sinus infections vanish; and other even more violent allergic explosive phenomena cannot be produced, as formerly, by the offending antigenic proteins.

As an example of this, one boy was on arrival unable to eat even cakes made with eggs, and on this account was having a special diet. Incontrovertible medical testimony arrived with him that he became ill, "swelling up," if he ate eggs in any form; yet with no drugs, no nursing, no fads, and no doctoring this same boy was eating boiled eggs with relish and no ill effects within three days of arrival, and remained well and free from this trouble thereafter.

No useful purpose would be served by quoting further examples, especially as every observer with wide knowledge of such types of illness can match these illustrative cases with many others in which, though the circumstances are different, the pattern of experience is identical. Objective reading of the advertising material dealing with the treatment of allergy forces a realization that, though activated by a sincere desire to heal, much therapy in this and allied fields is at present widely divorced from reality.

An Explanation Suggested

I have already outlined a theory by which some of these apparent contradictions can be explained. To use again the sense of smell as a schematic example, it is as if there persists a "morbid echo" of what was in the past evolutionary history of man an important defence reflex. In its original physiologically efficient state such a reflex would, in an appropriate physical emergency, readjust the vascular supply to the nasal mucosa, thus alerting the olfactory apparatus. To-day the obsolete paths seem to be used to relieve the pressure of morbid nervous tension. One of the most striking clinical findings in children of the type I have described above has been the cessation, without treatment, of constant nasal discharges, the clearing of the sinuses, often draining for the first time in months, and a return to normal of the upper respiratory tract, once the children have settled down in the relatively stress-free atmosphere of this family school. To those better versed in comparative physiology the idea will be less novel than it must appear to the clinician. Man is full of structures relating him to his more distant ancestors of which the significance is still obscure. Under the tension caused by unfavourable conditions a frequent, and useless, reflex discharge to the olfactory mucous membranes might be expected to cause engorgement and ultimate structural hypertrophy, with a resulting interference with the normal drainage of the paranasal sinuses and their consequent enhanced vulnerability to infection.

The phenomenon of morbid tension, so familiar to all workers in the psychiatric field, yet still obscure in its nature, seems to have its own clear relation to an earlier physiological defence mechanism. The sudden increase in the dynamic potential of the brain to ensure a maximum efficiency in the complicated reflex responses to danger was surely a universal attribute of survivors under the laws of natural selection. Pavlov (1941) has described qualities of brain type in dogs where "high mobility" in the cerebral cortex was not matched by adequate powers of "inhibi-

tion." At human level we describe as "worry" the constant morbid reaction to psychological equivalents of danger. People who worry often have brains that, except for this relative weakness of "inhibition," seem most efficient, and are frequently highly successful social types. Under conditions of stress over a prolonged period they quickly produce the high degree of morbid tension so apparent in their manner and their typically violent reflex responses on clinical examination. It is suggested that during such times vestigial autonomic and other reflex defence patterns not now in normal use can become reactivated along anatomical lines appropriate to the genetic inheritance of the susceptible individual.

It is, I think, probable that, as in the case of the upper respiratory tract, analogous "morbid echoes" of obsolete defence mechanisms may also prove to be a factor in other stress-conditioned diseases—for instance, certain of those affecting the heart, the stomach, the colon, the lungs, and the skin, to name but a few. To take the last two named: at amphibian level the skin is closely integrated through the autonomic system with the lungs and the pharyngeal exchange area as organs of blood-oxygen exchange. Watch any amphibian partly immersed in water, partly still in the air. It is apparent that in such an animal danger may call for a vasomotor response of maximal degree in the skin and lung, with the object of obtaining optimum oxygen exchange with which to face the emergency. The theory of a long-lost but once vital defence reflex helps us to understand why, at human level, there should be the close liaison between organs of such widely differing origins and with such diverse functions. Every experienced physician has seen the asthmatic person exchange this neurosis for a neurodermatitis, and later again change the neurodermatitis for an attack of rhinitis or asthma. Such a hypothesis would give us a possible physiological explanation of a number of debilitating and frustrating illnesses of obscure origin. For example, it might even help to sort out from the acute coryzas the many "stress-colds" that must confuse the issue in contemporary research on this subject.

The Adult Patient

As I have constantly seen, in the security of the family school described a child can be relieved of all these symptoms; but what of the adult, often burdened by irreversible structural changes in the affected organs; how can he get similar relief?

Here we must face the problem that at present no such effective relief is possible as that available to the child, whose environment is so easily modified and whose morbid habit of life is not yet so deeply ingrained. Benefit in neurotic illness seems to follow the most diverse measures, including an immense range of medicines and treatments. The explanation here presented might, however, reveal why so many are benefited through the powerful suggestion of security induced by the heterodox disciplines of many cults of healing, often based on contradictory foundations.

The adult patient will, I believe, be greatly helped by a better understanding of why he is ill. Too frequently the nervous patient is discouraged and depressed by an acute sense of personal failure. Should the theory we have considered be true, it would relieve the patient of much of the burden of social disapproval that, however well concealed, is a constant reality for the sufferer from neurotic illness. In the wider field of therapeutics a true appreciation of the underlying physiology may lead ultimately to more successful treatment.

It is not possible to discuss here the successful surgical treatment of certain types of nervous illness. The reduction of tension by lobotomy would again seem to depend upon the apparently paradoxical yet fundamental anatomical linking of the phylogenetically modern prefrontal areas with the very old thalamic and autonomic mechanisms.

At an earlier stage of evolution the fundamental reflex patterns would be excited mainly by danger, climate, sexual

attraction, and the search for food. At human level, by reason of the great complexity of social structure, psychological equivalents of these elementary requirements for survival are seen to take an increasingly high place in the wear and tear of modern life. Violent reaction to stress is frequently seen in children who are sheltered to an almost abnormal degree from real danger and climatic changes. How often the intelligent mother of a small family bewails to the doctor as she tends her stressed child: "It seems that the more care I take the more illness she produces; . . . the neighbours' children run the streets without supervision or care, and they hardly ever seem to be ill."

The advancing of such an unfamiliar hypothesis may perhaps seem less out of place to-day, when organic diseases are being treated with increasing success by psychiatry, and mental illness, as never before, is yielding to the surgeon's skill. The vast canvas upon which the human story must be painted to avoid a distortion of perspective, with too much prominence being given to the foreground, emboldens me to hope that those interested in this essentially human problem will tolerate its release from the confines of any special branch of medical practice.

The clinical examples quoted demonstrate the remarkable extent to which psychologically conditioned mechanisms alter both the severity of stress-conditioned illness and the threshold at which its diverse manifestations can be produced. I believe these phenomena will be better understood when human biochemistry is interpreted in close relation to comparative physiology.

Only then will realistic treatment be possible for this enigmatic group of diseases, so often found in those who reveal by their anatomical atavisms the possibility of the existence of less easily seen but most troublesome evolutionary vestiges within. A new era might then dawn for the much-frustrated yet often talented exhibitor of morbid autonomic reflex echoes, to the great future benefit of humanity.

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For patients who are faced with a long stay in hospital or prolonged convalescence following a serious illness, the Preparatory Training Bureau run by the British Council for Rehabilitation will assist towards a return to normal work. In some cases patients may be unable to go back to their previous employment, or illness may have interrupted a university or technical training course, but whatever the situation the Bureau assesses each case on its individual merits and needs, taking into consideration such factors as personal preference and educational background. The main medium for instruction is correspondence, although it is sometimes possible to arrange direct tuition from a visiting instructor. Subjects taught range over a wide variety of subjects from agriculture to criminal psychology. The Bureau works in close co-operation with medical officers, welfare workers, and especially with local education authorities, who have powers to reimburse tuition fees, although wherever possible students are encouraged to contribute towards the cost of their training. Further details may be obtained from the Registrar, Preparatory Training Bureau, Tavistock House (South), Tavistock Square, W.C.1.

Reports of Societies

HYPNOTISM

On January 8 a largely attended conference of the B.M.A.'s Psychological Medicine Group, with Dr. H. B. CRAIGIE in the chair, discussed the profession's attitude to hypnotism. The Group Committee had drawn up a statement on hypnotism, as follows:

(a) Hypnotism may be defined as follows: the use of suggestion with the intention of bringing about an altered state of consciousness involving a surrender by the patient of his normal powers of control.

(b) The hypnotic state should be induced only for therapeutic purposes. Its value as a therapeutic agent is, however, extremely limited, since its results are indefinite, and, although it may apparently induce relief of certain symptoms, this relief does not appear to be permanent. It tends to increase the subject's degree of suggestibility, and for this reason its use has been largely given up by the medical profession. When, however, it is used the hypnotic state should be induced only by a registered medical practitioner *or under his direction and in his presence*.

The words in italics were subsequently deleted at the suggestion of the Central Ethical Committee, and the statement so amended has been approved by the Council and reported to the Representative Body.

A Method of Approach to the Unconscious

Dr. E. A. BENNET, who opened the discussion, said that it was surprising to learn that the Group Committee's statement on hypnotism in 1952 was to all intents and purposes identical with the pronouncement made in 1892 by a special investigating committee of the British Medical Association and even with a report made to the medical section of the French Royal Academy of Sciences as far back as 1831 on the subject of animal magnetism. Was it to be concluded that no more was known on the subject than 60 or even 120 years ago? Surely not. Hypnosis was a method of reaching the unconscious, and the unconscious—whatever connotation be given to the term—was a main interest in psychotherapy. The unconscious contained the energy they sought to release for therapeutic purposes. There were other roads to the unconscious—for example, free association or active imagination, and hypnotism was by no means the best method.

Dr. Bennet criticized the definition which stated that hypnotism involved a surrender by the subject of his normal powers of control. The patient came for treatment because he felt he had already surrendered, and wished to regain, his powers of control. The balance between the conscious and the unconscious had been disturbed and the aim was to restore this. A patient was not treated by hypnotism; rather hypnosis permitted something to be done, just as an anaesthetist facilitates a surgical operation. Hypnosis required rapport, collaboration, between patient and doctor. This was not the same thing as transference. Before employing hypnosis the therapist should know his patient well and explain the procedure fully. Under special circumstances it could be employed with benefit in the removal of certain symptoms, of which amnesia, psychogenic loss of muscular power, impotence, and vaginismus were examples, but such treatment must be followed by abbreviated analysis. Many patients, thus treated, got well and remained well, and they did not develop a dependence upon the therapist.

There were certain real dangers in applying hypnosis. For example, the potentially psychotic patient, under hypnosis, might be seriously harmed by the release of more energy from the unconscious than he (or the therapist) could control. A further danger—and this might happen with non-psychotic patients—was that the restriction of consciousness