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JOHN HUNTER THE OBSERVER*

BY

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John Hunter was born in 1728 at Long Calderwood, a small estate in Lanarkshire seven miles south of Glasgow, near the village of East Kilbride. He was the last of ten children, of whom seven survived childhood. Of them James, fourteen years his senior, entered medicine and joined his brother William in London, only to end from phthisis a career of brilliant promise at the age of 29. William, ten years the senior of John, was for five years a student at Glasgow, and at first was destined for the ministry. When he was 19, however, he joined Dr. William Cullen, who at the age of 27 had a busy practice at Hamilton, near Kilbride. They must both have been young men of enterprise, for they arranged that in each winter one of them should study medicine in Edinburgh or Glasgow while the other carried on the practice. In 1740 William Hunter attended Alexander Morris's lectures in Edinburgh, and in 1741, at the age of 23, he made up his mind to seek his fortune in London. Cullen went to Glasgow, where he became Professor of Medicine; but a few years later he moved to Edinburgh, occupying successively the Chairs of Chemistry, Institutes of Medicine, and the practice of Physic, and left a high reputation as a lecturer renowned for the clearness of his exposition.

William Hunter lived at first in London with Dr. William Smellie, another Lanarkshire man and a friend of William Cullen's. Smellie had settled in London at the age of 42 after studying in Paris, and was just entering on a distinguished career in midwifery. He gave lessons in the art, using a real pelvis lined with leather for practical demonstration, and he was one of the first to stress the importance of accurate measurements. William Hunter remained with him only a short time, and became assistant to Dr. John Douglas and a surgeon's pupil at St. George's, where he worked in the dissecting-room. He visited Paris, and it is evident that he made great progress in anatomy, for in 1748 he established his own dissecting-room and advertised a course of lectures.

A Gift from Heaven

It was at this juncture that he was joined by his brother John, a raw red-headed Scottish boy of 20 who had so far given no signs of any ability, who hated books, and who was evidently regarded as the black sheep of the family. To the amazement of everyone he settled down to his new life in the dissecting-room as one born to it. He produced beautiful dissections and delighted his brother William, who was rapidly making his way in the field of midwifery and to whom this unexpected assistance must have seemed a gift from Heaven. At the same time he was a rough

customer, and a curious point in his favour was that he was a favourite with the resurrection men, upon whom the dissecting-room was dependent for materials. It must have been a rough place, for all modern antiseptics and preservatives were unknown, and dissection under such conditions was both unpleasant and dangerous and could be carried on only in the winter.

It is worth while pausing for a moment to consider these young men, Smellie, Cullen, and the two Hunters, and the country of their origin. Glasgow itself was only a small town of 15,000 inhabitants, and the corner of Lanarkshire from which they all came must have been primitive in the last degree. Beyond this stretched the Highlands, a country without roads and in a state of barbarism beside which Afghanistan would seem civilized. Moreover, just before this, in 1745, the Highlanders had invaded England in a destroying horde, pillaging Glasgow itself and all the surrounding country on their way. It was such an environment, and not the quiet amenities of a university town, that threw up four of the greatest leaders in the history of medical science.

Hunter's Medical Pupilage

In the summer of 1749 by his brother's influence John Hunter, now 21, became a pupil at Chelsea Hospital of the great Cheselden, now nearing the end of his career. On his death in 1751 Hunter became a surgeon's pupil at St. Bartholomew's Hospital, where Percivall Pott was rising to fame. Finally, in 1754 he returned as a pupil at St. George's Hospital, where he was afterwards to serve as a surgeon for twenty-five years. In 1756 he was appointed house-surgeon, but after five months he gave it up in order to devote his time to anatomy. His interest now extended to the anatomy and physiology of the whole animal world, and he worked from morning to night dissecting every animal he could find. Naturally his health gave way, and in 1760 after an attack of inflammation of the lungs he obtained a commission as staff surgeon in the Army and saw three years of foreign service at Belleisle and in Portugal. His health recovered, and in 1763, at the age of 35, he returned to London and set up in practice as a surgeon in Golden Square.

While waiting for practice he again established a dissecting-room and a school of anatomy, devoting the greater part of his time to preparing specimens and teaching students. In order that he might also study living animals and their functions he took a plot of land "two miles from London at a place called Earl's Court," and there he built a small house in which he could indeed live but which was the centre of a most extraordinary zoo.

*The Hunterian Oration delivered before the Royal College of Surgeons of England on Feb. 14, 1949.

Over the front door was the wide-open mouth of a crocodile. In the garden were many strange animals, including a couple of leopards and a pair of buffaloes which were occasionally put into harness and driven round London. A jackal, a zebra, an ostrich, a young bull, and many smaller animals all lived together in perfect harmony.

It was scarcely an orthodox way to develop a surgical practice, but he was acquiring a vast knowledge of comparative anatomy, and his contribution to this new science was recognized in 1767 by his election, at 39, to the Royal Society. In the same year he ruptured his tendo Achillis, and this irrepressible man not only treated himself successfully on ultra-modern lines but performed a whole series of experiments on dogs to see how tendons united. Next year he was elected a surgeon on the staff of St. George's Hospital, and he now moved to his brother's old house at 42, Jermyn Street. It was a good house, suitable for a surgical practice and into which he could take, as was the custom, a number of pupils in surgery. Among his pupils were several who rose to great distinction, and we find the names of Astley Cooper, Abernethy, Clive, and Edward Jenner. But it must have been a strange house, for already Hunter's one absorbing interest was in his collection. It grew until every available room was filled with strange specimens, dry and bottled, covering the whole animal and vegetable kingdom, whilst in the passage a giraffe appeared to be emerging from the floor below. How a surgical practice could be developed under such conditions is a mystery, but it gradually grew to large dimensions. Practice was, however, always a secondary consideration, and every penny that could be spared went to the collection.

Hunter's Daily Life

Of Hunter's daily life Ottley has given such a perfect description that I cannot do better than to quote it.

"He commenced his labours in the dissecting-room generally before six in the morning, and remained there till nine, when he breakfasted. After breakfast he saw patients at his own house until twelve, when he made a point to set forth on his rounds, even though persons might be waiting for the purpose of seeing him. . . . He dined at four, then the fashionable hour, and gave strict orders that dinner should be ready punctually whether he was home or not. He was a very moderate eater, and set little value on the indulgence of the palate. During many of the later years of his life he drank no wine, and very seldom remained long at table after dinner, except when he had company. After dinner he was accustomed to sleep for about an hour, and his evenings were spent either in preparing or delivering lectures, in dictating to an amanuensis the records of particular cases, of which he kept a regular entry, or in a similar manner committing to paper the substance of any work on which he chanced to be engaged.

"When employed in the latter way, Mr. Bell and he used to retire to the study, the former carrying with him from the museum such preparations as related to the subject on which Hunter was engaged. These were placed on the table before him, and at the other end sat Mr. Bell, writing from Hunter's dictation. The manuscript was then looked over, and the grammatical blunders, for Bell was an uneducated man, corrected by Hunter. At twelve the family went to bed, and the butler, before retiring to rest, used to bring in a fresh argand lamp, by the light of which Hunter continued his labours until one or two in the morning, or even later in the winter. Thus he left only about four hours for sleep, which with the hour after dinner was all the time he devoted to the refreshment of his body. He had no home amusements, no cards, for the relaxation of his mind; the only indulgence of this kind he enjoyed consisted in an evening's ramble amongst the various denizens of earth and air which he had congregated at Earl's Court."

It was about this time that Hunter, at the age of 43, married Anne Home, the daughter of an Army doctor and

29 years of age. She was a woman of great charm and considerable social distinction, the friend of Haydn, Madame d'Arblay, and Mrs. Montague. She was something of a poetess, and wrote the words for Haydn's *Creation* and the song "My mother bids me bind my hair," which in Haydn's setting is immortal. She must have had a difficult life, but she was devoted to Hunter, and her appreciation of his work is shown in her touching epitaph inscribed on his memorial tablet in St. Martin-in-the-Fields. Only two years after their marriage Hunter at the age of 45 had his first attack of coronary thrombosis, and though he made a good recovery the fear of angina shadowed the rest of his life. It only drove him to greater efforts to complete his work, but, whilst his indomitable courage demands our unstinted admiration, perhaps we owe a greater debt than we realize to Mrs. Hunter in the background.

In 1783 the lease of his house in Jermyn Street came to an end, and he bought the lease of a large house on the east side of Leicester Square and a house behind it in Castle Street, now Charing Cross Road. On the ground between the two he built a lecture room and a museum large enough to house his immense collection. In the Leicester Square house were his consulting-rooms, whilst the Castle Street house was devoted to dissection and the preparation of specimens for the museum. This back entrance must have seen some strange sights, from the visits of resurrection men to the arrival from Earl's Court of the skeleton of O'Brien, the Irish giant, which now stands beneath this very roof. A vast staff was employed, and between the cost of this and the cost of the building Hunter expended on his collection more than £70,000. For two years this extraordinary man lived and worked in these extraordinary surroundings, a constant sufferer from attacks of angina, and in the end, at the age of 65, its victim.

Hunter's Outlook

John Hunter was above all things an observer. He was devoured by a passionate desire to know how things were made and how they worked, and it was typical of the man that he realized that the only way to do this was to look and see for himself. Indeed, he summed up his whole outlook on life in his famous aphorism, "Do not think. Try. Be patient, be accurate." To us who grow from our cradles in a world of laboratories and research it is difficult to realize how revolutionary such a proposal must have seemed to his contemporaries. For most of them all knowledge was contained in tradition and there was something almost indecent in attempts to dissect Nature. To doubt the word of Aristotle was as perverse as to doubt the book of Genesis and was to uproot the foundations of all human knowledge. It is a mistake to suppose that the objections centred only on human dissections and the resurrection men; they went far deeper into resentment at any interference with what were regarded as established facts.

It was through this veil of prejudice and ignorance that John Hunter and his museum tore so completely, and it is this achievement which so amply earns our gratitude. The specimens in his collection are themselves of value, but of greater moment is the lesson they teach us of the value of observation.

The Value of Observation

What precisely do we mean by observation, and wherein lies its value? In a sense every one of us is the product of observation, for each of us is moulded by his reaction to environment. But scientific observation means something more than this. First of all it means inquiry, and inquiry means that we have asked a question. Something

has happened that we do not quite understand and our curiosity is aroused. We try to produce the same event and to follow the train of circumstances which led to it. Then—and it is here that the genius of the observer appears—we modify the circumstances and see the effect upon the result. Nine times out of ten they all fit together into well-known categories, and, though our curiosity is satisfied, that is all. But just once in a while things do not quite fit together, and then if we are fortunate and have infinite patience and persistence we may find a chink through which we may peer into one of Nature's secrets. Let me give you some examples.

In 1785 Henry Cavendish by passing an electric spark through common air succeeded in getting the oxygen and nitrogen, substances with which he was only vaguely acquainted, to combine together to form nitric acid. There was, however, a small residue, less than 1%, of gas left, which he surmised might be a gas of a different nature. A century passed before Lord Rayleigh astonished the world by the discovery of argon, the unknown residue which Cavendish with his primitive apparatus isolated. His observation was perfect, but no means then existed for its interpretation. Yet the observation itself was well worth while. The foundation of a building must be laid before the keystone is placed in the arch.

You are all familiar with the spectrum, that single octave in the vast range of ether waves which we call light and by which we see the world around us. To most of us it is just a series of brilliant colours, but to the physicist it consists of a vast number of narrow lines, each the product of a single length of wave, of a single pure tone in the harmony of light. These lines form definite groups, and each group is the luminous signature of a burning element which by this signature can be identified even in a star a million million miles away. Thousands of these lines had been measured so that their position was known with extreme accuracy, but in spite of endless attempts no connexion between these measurements could be discovered.

In 1885 a little Swiss schoolmaster in Basle named Balmer felt an urge towards research in physics and consulted Professor Hagenbach about what he should do. The professor, with a smile I imagine, suggested that he should find the relation between the measurements of the four principal lines of hydrogen. The wave numbers of these lines—that is, the number of waves in a centimetre—are 15,233.22, 20,564.79, 23,032.54, and 24,373.06.

It did not seem a very hopeful problem, but to the amazement of everyone Balmer returned in a few days with the answer. If you divide all these numbers by 109,677.69 the result can be written in the simple form: $(1/4-1/9)$, $(1/4-1/16)$, $(1/4-1/25)$, $(1/4-1/36)$. Obviously these are only the first four of a series, and since his time fifty more lines have been discovered, each taking its exact place in the series. Moreover, this curious number—109,677.69—is the magic key to the place of every line in every spectrum. It is now known as Rydberg's constant, and with it Niels Bohr, the great Danish physicist, was able to unravel secrets of atomic structure which have revolutionized our whole conception of matter. But it was Balmer who found the key.

In 1900 Crookes devised a toy in which a minute speck of radium was placed in front of a tiny fluorescent screen. On looking through a lens you saw a shower of bright sparks. A young physicist named Rutherford from the backwoods of New Zealand was intrigued by this and took the trouble to count the sparks under varying conditions. They proved to be the key to the secrets of radium and of atomic changes until then unknown, secrets which have already produced the atom bomb and which if they do not destroy us must certainly revolutionize our lives.

Some twenty years ago Alexander Fleming found a spot of mould growing on one of his culture plates, and he noticed that none of the bacteria in culture grew near the mould. Overcoming his natural resentment at such an impertinent intrusion into his laboratory by a mere mould, he studied

the intruder and found that it possessed the very remarkable power of preventing bacterial growth. He suspected that this might be due to some chemical substance secreted in the mould, but he had to wait over ten years for this substance to be isolated by Florey and for the discovery of penicillin.

Now in each of these cases the first observation was a simple matter; the genius of the observer lay in his appreciation that there was something here which he did not understand, some new fact outside his experience. He has found a door, but he does not know where it may lead and he cannot open it until he has found the key. But the observation was the first step, and without it the door would never have been found. And the initial observation is often so trivial that for most of us the event would have passed unnoticed and the observation never have been made at all. Think of Cavendish with his primitive globes of gas; the little Swiss schoolmaster with his incomprehensible figures; Rutherford and a few sparks; Alexander Fleming and a spot of mould on a culture plate. Yet each was peering through a tiny window into a new world.

It is, however, only very rarely that the power to make observations and the ability to unravel their meaning are combined in the same individual, or, indeed, that both can be accomplished in the same epoch. As we have just seen, years may elapse between the observation and the full appreciation of its meaning. It was in observation that Hunter was supreme, and, although within the limits of his time he often made acute deductions from his observations, his records are still worth our study as examples of what can be done with little more than unaided eyesight.

The Background of Observation

With such a great example before us I feel that it will be worth while to devote a few moments to consideration of "observation," to see in what it consists, to study its uses, and to examine how such power can be acquired and developed. In a sense our whole lives are spent in observation, for when you come to examine it you will find that our every action is a result of some stimulus and a reaction to environment. But this is not quite what we mean by conscious observation. Surrounded by a vast stream of events, of which fortunately we can appreciate only a minute fraction, we sometimes actively direct our attention to some detail which has aroused our interest. What is involved in such attention and under what conditions can it serve a purpose?

The mere fact that our attention has been attracted shows that something unusual has occurred either in the external world or in its impact on our mentality. It is usually the latter, for Nature is very conservative and rarely allows a variation, but in any case the important fact is that to us the event was exceptional. I suppose that for countless aeons of time men watched the stars stream across the sky before one of these men noticed that one of the stars had moved from its place. But notice that that man himself must have watched the stars for years till their permanent relation was fixed in his mind and he was startled to find that one had changed its place. You can imagine that he kept the secret to himself and watched night after night to see if it were really true. And if he were a wise man the more certain he became the more closely would he guard such a revolutionary discovery.

You see, then, that observation itself demands a background of conscious knowledge. Our first astronomer saw the stars as other men saw them, but with this difference—that up to the moment of his great discovery he realized that they all kept their appointed stations, night after night and year after year. Without that background his observation would have been meaningless; with that background

it was a discovery which marked an epoch. The first essential of all useful observation is, then, a background of established knowledge—that is to say, that on our memories is imprinted a pattern to which events around us conform, arousing our memories, perhaps, but without disturbing the pattern. In most of us the pattern becomes so fixed that variations pass unnoticed, and indeed since events are never exactly repeated such assimilation of variation is essential if the pattern is to remain. But then one day we become conscious of some variation, perhaps because of its insistent repetition. Our interest is aroused and we stir ourselves to active observation.

Curiosity an Essential Factor

Here men are divided into two great groups, the incurious and the curious. Of the causes of the divergence we know nothing; perhaps it is based on some endocrine or nutritional factor; but, however that may be, we all recognize the man to whom discovery is the breath of life and the man to whom it is anathema. The latter is often a first-class teacher who not unnaturally fears the disturbance of his mental categories; the former may be a great researcher but is often entirely unintelligible to his pupils because he can never keep clearly before them the picture they require, since his mind is too fluid. Just occasionally you find the rare mind with a clear picture but a burning curiosity which can inspire the pupils as well as the teacher.

I should say, then, that one essential factor in observation is curiosity. There are many kinds of curiosity, from the mere desire to interfere, with which we are all familiar, to the urge to satisfy some deep longing for comprehension, to resolve a discord in a final harmony. Whatever its true nature it is undoubtedly an instinct essential for fruitful observation and one with which every teacher should seek to inspire his pupils. In John Hunter it was almost a mania, and it was the steady driving force behind all his work.

A background of knowledge, curiosity, and the desire to extend that knowledge are thus essential for fruitful observation, but something more is still required—the training of the power of observation itself. For the mere act of observation is not a simple act but a highly complex process in which many factors are involved, and in the trained observer all these factors are subconsciously combined into a perfect unity, so perfect that its complex origin is concealed from the observer himself.

Each of us is given at birth eyes, ears, and touch corpuscles in his fingers. Over these primary organs of sense we have little influence; fortunately we have little if any power of modifying their structure, and they do not appear to vary greatly from one individual to another. These different organs carry impressions to the nervous matter of the central nervous system and ultimately to the brain, the great central exchange for the correlation and synthesis of nervous impressions. Of how the brain works we know very little, but two facts appear to be well established. After a very early age its cells never divide and therefore never multiply, but they have the power of forming connexions with adjacent cells and of facilitating the passage of impulses by the reduction of the resistance at the synapse where they connect.

Trained Observation

Each of us, then, is provided at birth with sense organs which he cannot modify, and a system of intercommunicating cables along which he can transmit messages but to which he can make no addition. By constant repetition of one system of impulses, however, he can break down resistance at the appropriate synapses so that the message passes

freely and without conscious effort. We can in fact develop a trained action or acquire a habit. We can modify or combine the impressions coming in through different channels so that, far from colliding, they reinforce one another and resolve confusion into a single clear, definite picture.

It is only by such training that the power of observation in any field can be acquired, and a few examples will make this perfectly clear.

The artist has trained his eye and his hand so that they work together in perfect harmony, and while he studies his subject you can see his hand already making the movements which will ultimately convey to paper through his pencil what his eye has grasped. Do you imagine that a violinist thinks where to put his fingers? He does not think about it at all, for he knows that his ear and his fingers work together in perfect harmony and that they will give him all that he asks, whether in brilliant cadenza or in subtle tone. And yet the co-ordination demanded in the artist and the musician does not surpass that necessary to the skill of the true clinical observer.

A physician is standing by a child's bedside; his fingers are on its wrist. He feels the dry, hot skin. He notes the racing pulse and estimates its power, its quality, its regularity. He sees the flushed face with its tinge of blue; he sees the nose expanding at each quick intake; he hears the hurried respiration and its characteristic grunt. And he knows that he is faced with a case of acute pneumonia with a certainty which nothing but direct clinical observation can afford. His long experience has gathered together a great number of separate impressions into one clear picture. He is a trained clinical observer, and all his impressions are grouped together subconsciously into one observation which sweeps away irrelevant detail and grasps the one essential fact.

Perhaps I have chosen too simple an example, but the point I wish to stress is the value of trained observation and the great complexity of the factors which are involved in its achievement. I do not in the least degree undervalue the aids which science has placed at our disposal—chemical investigations, microscopical studies, and x rays, for example—but all these are details to be assimilated by the observer and brought into the general picture, for without this co-ordination they are all too likely to lead to errors.

Even elementary observation is the most difficult thing for a student to learn, and trained observation is only slowly acquired, but it is a power at which every student should aim from the first moment and of which every teacher should enforce the value. For the majority of us visual impressions are the most important, and these can be developed better and more rapidly by attempts at drawing than in any other way. However crude the drawing may be, the mere attempt enforces observation, and the shape of a bone, for example, can in a few minutes be fixed in the memory. The mere fact that one is rousing from slumber tracts in the brain so far unused means an incalculable addition to one's powers. And if one can succeed in arousing by such means a latent curiosity the trained observer is in sight.

The Teacher's Problem

This is the real problem of every teacher—how to teach his students to observe. Great variations in methods are possible, and in no field of action is there greater scope for originality, but at least in a field so complex as that of medicine certain broad lines must be followed.

First of all the student must be shown in detail all the essential elements of the completed picture which he should ultimately retain as a permanent pattern. Most of us are visualists, and only what we have actually seen leaves a permanent impression on our memories. In Continental clinics the lecture-demonstration fills a more important role than it does in this country, and I feel that we might make much greater use of it than we do. I still remember a

demonstration on tuberculosis of the spine given by the late Professor Hotz at Basle. It began with a series of fine pathological preparations showing every stage of the disease, with skiagrams and photographs to show its clinical progress. A little man with an old healed angular curvature then came in, and he was followed by two bed cases, one of paraplegia and one of psoas abscess. In an hour we had been shown a complete picture of the disease so vivid that it still remains to me a living memory after twenty-five years. Such a demonstration involves resources in material and assistance which are rarely available, but can you question their incomparable value?

Next the student must have access to specimens, to microscopical slides, and to patients, so that he may study every detail of the picture at his leisure. In this College we are rapidly building up a pathological museum with this very object in view, where the student will find ready to his hand all the material for training his mind in exact observation which no book can supply. The patient himself must be studied in the hospital, but perhaps we may in the very distant future have even our own clinic for the more advanced study of disease.

With this experience behind him the ward demonstration will take on for the student an entirely new significance. Here the teacher can draw upon his own experience and illustrate the points he desires to stress from the patients around him, while the student is introduced to the human side of observation as distinct from the purely scientific.

Finally, in the out-patient department the art is acquired of rapid recognition of main symptoms and their separation from a confused mass of unimportant details. The student learns to recognize disease at sight, to become in fact the trained observer.

You will see, then, that the mind of the great observer is replete with pictures of definite entities, each a vivid and living reality based on an actual experience. It has been my good fortune to meet some of these great minds who leave so deep an impress on our own personality, and when I mention the names of Harold Barnard, Henry Head, and Wilfred Trotter many of you will be recalled to happy memories. With Barnard every case was an adventure into the world of romance, every specimen a trophy from a voyage of discovery. To Head a small area of increased sensation was an Open Sesame, a slight change in gait the key to deeply seated processes of vital import. The quiet glance of Trotter could penetrate into the subtle instincts which, to us unknown, play so large a part in all our lives. Each was a great observer and each has left for us the golden harvest of what he saw and the gleaming inspiration of his example.

In the ancient world men looked within themselves for knowledge, and for them the world around had little interest. For us a vast field of Nature has been opened of which they knew nothing, and it seems to be as limitless as the heavens. Whether we look down a microscope at a minute organism, or through a great telescope at a nebula a million years of light away, we realize that there is an infinity beyond. But, infinitely small or infinitely distant, it is there for us to see, and it only awaits our observation. All around us are whole worlds for us to see if we will only look, to hear if we will only listen.

"What does it matter where or how we die
So long as we have health to see it all—
The different ways that different things are done,
And men and women loving in this world?"

Could a better epitaph be found for the great observer we honour to-day—John Hunter?

HAEMATEMESIS

WITH SPECIAL REFERENCE TO CHRONIC PEPTIC ULCER

BY

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While haematemesis remains one of the common emergencies in hospital practice it is natural that its prognosis should be the subject of controversy. This controversy has been fostered by the widely different fatality rates recorded by various workers. To a great extent these discrepancies have arisen from faulty selection of data and errors in their presentation. The fallacies of many published series have been pointed out by Avery Jones (1947), and he has suggested criteria for estimating the fatality rate which if generally adopted would permit fair comparison of different series. Avery Jones has also presented the largest personal series of cases of haematemesis treated in this country, with a fatality rate of 8%. It is likely that haematemesis carries a considerably higher fatality rate in the country as a whole, for it would be absurd if a highly trained specialist did not obtain better results than less-experienced workers.

The great value of Avery Jones's results is that they set a standard which others may seek to achieve. In this connexion it is noteworthy that the literature shows that most series with a low fatality rate have come from interested single physicians presenting their own cases, whereas studies of gross hospital figures commonly indicate a much less favourable prognosis. Thus Babey and Hurst (1936), Smith (1945), and Avery Jones (1947), who report their own cases, record fatality rates of 6-8%. Conversely, recent publications of mass hospital figures show a fatality rate ranging from 13 to 25% (Chiesman, 1932; Cullinan and Price, 1932; Burger and Hartfall, 1934; Hellier, 1934; Aitken, 1934).

We believe that mass hospital figures are more truly representative of the dangers of haematemesis than are the results obtained by a few specialists, provided that the data are handled with an appreciation of possible fallacies. The one essential is that only those data which are likely to be accurately recorded in the notes should be employed. The present study shows that haematemesis remains a highly dangerous condition.

Data

The sources of data of this study are the in-patient notes of the Radcliffe Infirmary, a general teaching hospital in a half-rural, half-industrial area, covering the ten years 1938-47 inclusive. Case notes of all patients admitted as emergencies because of haematemesis or melaena have been analysed. The cause of the bleeding was classified under the following headings: (1) chronic peptic ulcer; (2) acute peptic ulcer; (3) other causes; (4) unknown.

The criterion used for making the diagnosis of peptic ulcer was a record in the case history of epigastric pain with at least two of the following characteristics: (1) relationship to meals; (2) relief by food, alkalis, or vomiting; (3) periodical remissions. In addition, a history of previous perforation or positive x-ray findings were taken as strong evidence in favour of the diagnosis. Ulceration was deemed to be acute if there was no history of periodicity and the symptoms had been present for less than three months.