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# The Central African Journal of Medicine

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Number 5

## The Art of Diagnosis\*

BY

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Diagnosis is an art and not a science. I had a clinical teacher who used to say that if it were a science it would probably become so dull that no one would wish to practise it. Naturally the doctor constantly uses the ancillary sciences to assist him in his art. But it is easy to overlook the fact that the application of the principles of science to the diagnosis and treatment of disease is only one limited aspect of medical practice. The practice of medicine in its broadest sense includes the whole relationship of the doctor to the patient. It is an art based to an increasing extent on the medical sciences, but comprising much that still remains outside the realm of science.

### ANCILLARY SCIENCES

The art of medicine and the science of medicine are not antagonistic, but supplementary to each other. There is no more contradiction between the science of medicine and the art of medicine than between the science of aeronautics and the art of flying (Peabody, 1927). To practise medicine well presupposes an understanding of the sciences which contribute to its modern structure, but it is obvious that sound professional training should include a much broader equipment than science provides. One of the major problems which faces the clinical teachers of to-day is the need to graft the practitioner's art on to the main trunk of the fundamental sciences in such a way that there may arise a symmetrical growth of knowledge and wisdom.

### FALLACY OF EXCLUSIVE SPECIALISM

As a discipline and an education medicine must be regarded as one and indivisible. Exclusive specialism may be necessary in surgery, but in medicine it is a menace. Narrow specialisation has reduced the intellectual level of contemporary medicine, for it is very difficult for a man to make an exclusive study of a small branch

of medicine without losing his sense of proportion. The error is not confined to medicine. Scientific specialists commonly insist that the nature of the work they do is too abstruse, intricate and obscure to be understood by others. This attitude has engendered a dangerous fallacy. Scientific advances are not of their own nature specially difficult to understand. On the contrary, one test of the validity of a scientific discovery is the degree to which it can be reduced to a simple statement. Nevertheless many scientific workers remain convinced that their results can never penetrate the mind of any ordinary man.

### SUBDIVISION OF THE SCIENCES

The increasing subdivision of the sciences is a product of the last hundred years and has come about as a result of the vast and rapid increase of knowledge. As knowledge advanced it became more divided. As it became more divided it was appreciated by fewer and fewer. And at last the body of science has become so fragmented that each investigator is intelligible only to himself. The outcome of all this is surely the extermination of science, unless indeed we can persuade ourselves that all people with a scientific training can grasp in principle the scientific advances in other branches than their own. To bring this about we must have writers and teachers with sufficient scientific and literary experience to bring expert knowledge down to the level of the ordinary man (Singer, 1931).

### CLINICAL TECHNICIANS

In so far as all this applies to medicine, the remedy is in the hands of the universities and the hospitals. No physician should be allowed ever to give up the study and practice of general medicine. Within this framework let him pursue whatever special studies he may wish. He must, of course, remember that the more he uses machines and laboratory apparatus to obtain his results, the greater is the risk of his becoming a clinical technician. Good doctoring depends but little on machinery, and the proper care of the patient is based more upon good bedside medicine than upon anything else. Let us not deceive ourselves. If we hand over our students to be taught by a set of clinical techni-

\* An address given to the Mashonaland Branch of the British Medical Association on 3rd August, 1955.

cians, then the survival of good doctoring is in peril. I am told that in the United States of America a new god called the Clinical Integrator has come into being. This Gilbertian figure sits in an expensively furnished room, brilliantly lighted with batteries of fluorescent strip-lamps. All day long house officers and other resident doctors reach him by express elevator. They stagger along under great bundles of clinical notes and laboratory reports which they lay before the new god. He then proceeds to tell them what's wrong with a patient he has never seen. Let us take warning from these stupid antics and make up our minds never to embrace this cult.

#### INSTRUCTION BY THE GENERAL PRACTITIONER

It is, of course, wrong of our medical schools not to enlist the general practitioner as a teacher of undergraduates. The doctor of a family should be a privileged friend, with wide experience and up-to-date knowledge, able year after year to co-ordinate the medical care of all its members. In an age of increasing specialisation it is easy to forget that this continuous responsibility for the care of patients is shouldered only by the general practitioner, who works under conditions very different from those in hospital, where he learned his medicine. His responsibility continues even when specialised assistance is sought or when the patient is admitted to hospital. Whenever a patient brings a problem the doctor must feel that it is his duty to solve it himself, or to ask someone else to solve it for both of them, so that the patient is left with a lightened burden. General practice embraces a wide range of human relationships; and since health is intimately related to work, happiness and purpose in life, this problem may concern almost anything and anybody; it may be medical or social or both.

#### THE FAULTLESS PHYSICIAN

On occasions the work we have to do can be complex and difficult. The great Thomas Addison said: "All doctors make mistakes. The greatest is he who makes least." Sir Robert Hutchison added to this: "It is quite impossible that you should always be right in your diagnosis, if only for the reason that disease does not always play the game. It is better, however, to be wrong on sound principles than right by chance. Guessing is to be avoided at all costs; for if you once get into the habit of guessing you are diagnostically damned." A certain physician with a pretty wit tells his students that the prevention of mistakes is a matter of inher-

ance, personality and technique. To be exempt from mistake-making, a physician must have a faultless inheritance with a full quantity of probity, integrity, equanimity and perspicacity. He must be able to work in soundproof rooms with ample secretarial, nursing and technical assistance. Personally he must be a kind of good-looking philosopher-athlete, benign, patient, omniscient, yet with the tenderest of human touches. He must be remotely above all human frivolity. He must be completely exempt from the jar and shock of economic stress and be amply possessed of private means, increased annually by judicious investments on the stock exchange. But how could there ever be such a man as this?

#### DEFINITION OF DIAGNOSIS

What is a diagnosis? At best it is a balance of probabilities: an inspired attempt to arrive at a correct conclusion on inadequate evidence. Diagnosis, unlike the search for scientific truth, precedes and foreshadows action: it cannot stay for final demonstration. As Sherrington wrote, "Science nobly declines as proof anything but complete proof: but common sense pressed for time, accepts and acts on acceptance." Without accurate diagnosis it is obviously impossible to establish a prognosis or to decide upon proper treatment. Of course, we all know that treatment can be divided into three parts: the first part of treatment is diagnosis, the second is diagnosis, and the third is diagnosis. True diagnosis aims at stating the cause, at summarising the pathological process, the anatomical lesion, and the consequent disturbance of function. Thus, rheumatic carditis— aortic incompetence—auricular fibrillation—congestive heart failure. But diagnosis in its broadest and best sense is not limited to organ diagnosis nor to machine diagnosis. It must include a comprehensive survey of the constitution and personality of the patient as well as his social, occupational, family and economic environment. We can classify the essentials of diagnosis under the headings:—

Good history taking.  
Adequate observation.  
Wise judgment.  
Factual knowledge.

Equally we can say that mistakes in diagnosis arise for four reasons:—

Poor history taking.  
Defective observation.  
Faulty judgment.  
Ignorance.

## A.—GOOD HISTORY TAKING

What the patient says both spontaneously and in answer to our leading questions is of the utmost importance. As Sir William Osler put it, "Listen to the patient's story—he is telling you the diagnosis." The eliciting of an accurate history reveals the quality of the practising physician. It demands care and courtesy, time and patience, and the failure to take careful histories is in no small measure an expression of the economic structure of the present-day practice of medicine with its resultant hurry (Cohen, 1943). If adequate time is devoted to the patient's story, then thoroughness and precision should naturally follow.

*Natural History of Illness.*—Innumerable patients show no abnormal physical signs. In such cases it follows that diagnosis must be made on the history. Good history-taking only bears fruit in the hands of the doctor who has grasped the natural history of diseases. This greatest gift, second only to good judgment, comes by experience, but only to him who keeps his mind always open to learn. We must learn to recognise what Sir James Mackenzie called "the face of disease." This varies greatly in different parts of the world and in different races. The natural history of diseases like gout, peptic ulcer and anorexia nervosa is so characteristic that in typical cases it is possible for the doctor to make up his mind even before he comes to the physical examination. Of course, it is utterly unpardonable to make a diagnosis on the patient's description of his illness without examining him.

*Handling the Patient.*—The manner of our questions makes all the difference in the world to a nervous or suspicious patient. We may defeat our own ends by wounding the sentiments or conscience of the patient long before the physical examination begins. The difficulties arising when the patient is forgetful, disconsolate or deaf are surmounted better by some doctors than others. But whether he be garrulous or monosyllabic, helpful or obtuse, he is still the best witness to what has happened and should be handled with great patience and understanding. In the case of a child, some doctors are good at gaining its confidence and can then continue with the examination without making it cry.

*Listening to the Patient.*—One patient is a good witness and another poor. The patient born in London usually gives an excellent history. His answers are logical and to the point.

His evidence is direct and is given in a helpful, forthright manner. But the countryman, especially if he works on the land, often has to have the history of his illness dragged out of him by methods of slow extortion, and even then a great deal of what he says may be based on superstition and therefore prove irrelevant. We must be prepared to let the patient talk, though not infrequently the over-garrulous must be curbed. To sort out what is relevant in a history and to do it well is an art which comes only by experience. A devoted wife is found time and again to be an excellent observer of the steps which led up to the failure in health of her husband. On occasions even a child may contribute to the solution of a diagnostic problem. The first case of psittacosis in England was diagnosed by a child, who appeared in an unofficial capacity at the consultation and made the unlikely remark, "I think auntie has what the parrot died of."

Don't tell the patient that he must alter his story. A young boy in Cape Town repeatedly gave the history that a very small pine cone which he was holding between his teeth disappeared while he was whistling. He was treated for broncho-pneumonia, which showed such delay in healing that a consultant was called in. Directing the boy what to say, the family doctor told him, "None of that nonsense about the pine cone; start with the pneumonia." The consultant confined himself tactfully to the suggestion that the boy be admitted to hospital. Bronchoscopy revealed the pine cone, and when it was removed there was rapid healing of the lung infection.

*The Daily Life of the Patient.*—If you could live the life of the patient, sharing his emotions and viewing step by step his daily habits, his diet and his work, you would make less mistakes. The artisan who may be ill because he works in a dangerous trade should always be allowed to describe step by step the exact processes which make up his daily work.

A girl of 19 complaining of abdominal pain stated that X-rays had been taken of her back and gall bladder in other hospitals. She worked in a perambulator works, sandpapering lead-painted surfaces by the dry method. She therefore inhaled the dust of lead compounds and was suffering from lead colic.

A woman of 30 with typical symptoms and signs of pulmonary tuberculosis gave her occupation as housemaid. Tubercle bacilli were found in the sputum and X-rays of the lungs showed the characteristic changes of chronic pulmonary tuberculosis. She died later, and the

inquest findings showed asbestosis complicated by tuberculosis. Years previously she had worked in an asbestos factory, cleaning the carding machines and constantly inhaling dust.

A woman of 52 with pneumonia gave her occupation as cook. She died of psittacosis having cleaned the cage of a sick parrot as part of her duties.

*Presenting Symptoms.*—All symptoms are not of equal diagnostic importance. There is usually one symptom which troubles the patient more than any other, and that is the presenting symptom (Hutchison, 1928). Special attention should always be given to it. It is a good rule not to ask leading questions when taking a history, but once a tentative diagnosis has been made on the presenting symptom it is well to ask for corroborating symptoms which the patient may not have specially observed or which he may have omitted to mention. The experienced doctor shows great skill in the choice and wording of his leading questions.

*Correct Sequence of Events in the History.*—To obtain the story of events in their correct sequence is especially important in cases of chronic chest disease and acute and chronic abdominal disease.

A woman of 23 after a month's illness was admitted to hospital with an empyema which was drained. Pyrexia and cough persisted. The history was re-investigated, and it was found that four weeks before the empyema was diagnosed she suddenly choked at a meal while eating a mutton chop. Bronchoscopy was performed, a fragment of mutton bone seen, and removed. The patient then improved considerably, but later fetor of the breath and copious expectoration developed. There was remittent fever, marked clubbing of the fingers, extensive fibrosis of the right lung, with scoliosis and displacement of the heart. Bronchiectasis was confirmed in bronchograms. She died of bronchopneumonia four years after the choking accident.

A man of 52 was admitted to hospital for investigation of abdominal pain supposed to be due to carcinoma of the colon. Symptoms and signs of intestinal obstruction developed, an emergency operation was performed, and it was found that a gallstone had ulcerated into the duodenum and become impacted in the ileum. He died immediately afterwards. This condition has a characteristic history advancing by stages. The man died because of bad history taking, and it is no consolation to me that 85 per cent. of these cases are missed anyway.

*Family History.*—The family history clearly is important in illnesses such as haemophilia, hereditary haemorrhagic telangiectasia, and familial haemolytic icterus.

A man of 47 was admitted to the London Hospital in 1933. A diagnosis of familial haemolytic icterus was made, and splenectomy performed. Increased fragility of the red cells in this disease was discovered in 1907. In 1898 the patient had been admitted as a lad of 12, and the diagnosis made of jaundice, anaemia and splenomegaly. His sister had had three abdominal operations, and on all three occasions jaundice was mentioned in the notes as if it were a mystery. Thus: 1915, right salpingitis, right pelvic peritonitis, laparotomy. 1918, right ectopic pregnancy, right salpingectomy. 1930, gallstones, cholecystectomy. Subsequently the whole family was examined, and a brother aged 28 was found to have the disease in typical form.

*Exact Nature of the Pain.*—Too often insufficient enquiry is made as to the severity of pain, whether it occurs at intervals, its site, and radiation. Sometimes the patient gives a very apt description.

A carpenter of 58 who had suffered from myocardial infarction said the pain was utterly unbearable and that he would rather die than have it again. "It was as if you took a brace and bit, heated the bit red hot and drilled it through me from my breastbone to my back."

#### B.—ADEQUATE OBSERVATION

The history and the physical examination go hand in hand. It is possible for the physical examination to be worthless without the history. Once in every six months' period of clerking, Kingston Fowler would demonstrate how he could diagnose a case without asking a question. On one occasion at the end of half an hour he admitted defeat, and then asked the patient why he had been admitted to hospital, and he replied, "I've a tapeworm." It is rare to-day for a patient to refuse complete examination; rather the reverse. The average young woman wears practically nothing anyway, and strips completely naked in a trice. If a patient cannot be convinced that complete examination is necessary, his case had better be abandoned.

Of course, patients often fail to understand why the kind lady in the doctor's house tells them to strip to the waist when they complain only of a sore throat. Making muttered protests, one such man was shown into an ante-room only to find another there before him also stripped

to the waist. Voicing his protest to this man, he received the reply. "That's nothing; I came to look at the gas meter." And surely we can feel for the patient subjected to the indignity of digital examination of the rectum who said, "Doctor, isn't there anybody with a longer finger? You see, my trouble's here"—pointing to his thyroid cartilage.

*Thorough Physical Examination.*—In the ideal physical examination the patient is examined completely naked, from scalp to plantar reflex. Never omit to test the urine. Carry the following instruments:—

- (a) For invariable use: Clinical thermometer, torch, ophthalmoscope, tongue spatula, patellar hammer, sphygmomanometer.
- (b) For occasional use: Glove for digital examination of vagina and rectum, auroscope, transilluminator, laryngoscope, haemoglobinometer.

*Observation of Small Details.*—One of the differences between a really excellent clinician and a more ordinary doctor is seen in his observation of details, for nothing about a patient is ever too small to be noticed. Further, we should take warning that no observation, however small or apparently trivial, which fails to fit in with the tentative diagnosis should be put on one side as unimportant.

It is a fatal mistake to examine a patient through gaps in his clothing. A man of 62 complained of pain in the middle of the back. In hospital secondary deposits in the spine had been diagnosed by X-rays, but no primary growth was found. Later at home his doctor removed his shirt and found a sarcoma of the left clavicle. The man regarded this simply as a little rheumatism. All previous investigators had pulled up his shirt, thus hiding the mass.

The best instance of laziness I remember happened on a fine summer afternoon, when the out-patient clinical assistant was hoping to play tennis. He saw a woman of 46 with a hoarse voice, and advised her to take a gargle to cure it. A week later examination of the patient revealed syringomyelia extending to the bulb, an extensive area of dissociated anaesthesia, weakness and wasting of the shoulder girdle muscles, wasting of both hands and paralysis of the left vocal cord.

*Rectal Examination.*—Digital examination of the rectum may provide the vital link in diagnosis. As some coarse surgeon has put it, "If you don't put your finger in it you'll put your foot

in it." This examination must never be omitted, whatever the age of the patient, where there is diarrhoea, bleeding, pelvic pain or sciatic pain. Sometimes it is of prime importance, although there is nothing to point to the need for its being done.

A man of 68 had vague aching pain in the lumbar spine, but no urinary symptoms. He was rather pale and had a slight low-colour-index anaemia. Carcinoma of the stomach was excluded by opaque meal examination. The pain in the back increased. Digital examination of the rectum revealed carcinoma of the prostate invading the base of the bladder. X-ray examination showed that the pain in the back was due to secondary carcinoma of the skeleton.

*Abdominal Pain in Disease of the Chest.*—Examination of the chest and spine is essential to explain some cases of abdominal pain. Tuberculosis, secondary carcinoma and multiple myeloma involving the spine all can give rise to this difficulty. Of acute diseases of the chest causing abdominal pain, pneumonia with involvement of the diaphragmatic pleura is classical.

A man of 45, bearing a letter asking for an opaque meal examination to be done for duodenal ulcer, had had an attack of retro-sternal pain much more severe than an ulcer attack and requiring morphine. Examined on the couch, he had extensive pericardial friction sounds over a large area of the precordium from a myocardial infarct in a situation accessible to auscultation.

*Omit Nothing.*—Never forget to palpate for enlarged lymphatic glands and to examine the hernial orifices. In examining the chest we must recollect that there are apices of the lungs to be examined back and front and that the bases are anterior, posterior and lateral, that is, axillary. In England an army of curious animals called chest physicians is now learning to advance upon the wards looking neither to right nor left, and certainly not at the patient, to shout the slogan, "Sister, the X-rays, please."

Invariably we must test the urine. A man of 45 had nausea and abdominal discomfort, which were mistaken for carcinoma of the stomach. He was sent 10 miles to a radiologist for opaque meal examination. Complete clinical examination would have shown enlargement of the heart, thick arteries, high blood pressure, retinitis and albuminuria. It is totally inexcusable to send a patient dying in uraemia upon such a journey.

A woman of 30 when five months pregnant had fever and shivering attacks, but no urinary symptoms. The urine was not tested until admission to hospital, when albuminuria was found establishing the diagnosis of pyelitis of pregnancy.

Try to avoid laparotomy in a patient with lead colic, there may be a blue line on the gums; and in the gastric crises of tabes, where Argyll-Robertson pupils and absent ankle jerks should have been found.

A man of 38 was admitted unconscious with headache, vomiting and papilloedema. He was thought to have a cerebral tumour, but in fact he had a cerebral abscess which was shown at necropsy to be accessible to drainage. Examination of his chest would have revealed signs of fibrosis of the right lung with bronchiectasis to which the cerebral abscess was secondary.

#### C.—WISE JUDGMENT

In the interpretation of the patient's story and of the clinical observations made, both wisdom and judgment play an essential part. "Knowledge comes, but wisdom lingers." Like the judge, the physician must assess the significance of answers to his questions and determine what weight he will give to these answers in his summing up. To the good doctor the history does not remain merely a garbled category of facts, but passed through the prism of his trained intellect it emerges a clear pointer to the diagnosis.

Judgment seems to be an inborn faculty, the result of a union of mind and character which a man either has or has not. Many highly intellectual men have poor judgment; others whose fundamental knowledge of anatomy, physiology, pathology and pharmacology is shaky have good judgment. Sir Robert Hutchison (1928) points out that judgment seems to be much the same as common sense and closely allied to a sense of humour, which is the same thing as a sense of proportion. He greatly doubts whether a man can improve his power of judgment; but for myself, I still hope that he is wrong.

As to common sense, a famous lecturer used to say to his class, "Gentlemen, in books you will read of five special senses, but in fact there is a sixth, which is so rare that it is called *common*." And Kipling (1899) wrote:—

"And we all praise famous men—  
Ancients of the College;  
For they taught us common sense—  
Tried to teach us common sense—  
Truth and God's Own Common Sense—  
Which is more than knowledge!"

*Avoid Bias.*—Thinking that you know when in fact you don't is a fatal mistake to which we are all prone. Even Aristotle could have avoided the mistake of thinking that women have fewer teeth than men by the simple device of asking Mrs. Aristotle to keep her mouth open while he counted. He did not do so because he thought he knew (Russell, 1950). Mediaeval authors had a passionate conviction that unicorns existed. Not one of them thought it necessary to avoid dogmatic statements about these animals just because he had never seen one. It is a common fallacy to suppose that a doctor or a nurse will necessarily be a difficult patient and that the complaints of the child of a doctor or a nurse are imaginary. Such a view is biased and can do great harm.

The parents of a child five years of age who were both doctors had taken the boy to two colleagues in ophthalmology because it was apparent that he couldn't see properly. Each dismissed him as the emmetropic child of exceptionally fussy parents! Insistence that the question be settled by retinoscopy ultimately revealed severe hypermetropic astigmatism. When provided with spectacles, the child shouted with glee at his first clear picture of flowers in the garden.

We should approach every case with an open mind, and this is the main reason for consultations. The consultant must approach his case unbiassed. The layman is entirely justified in his desire for an independent opinion, by which he means the opinion of one who has approached the case fresh and without preconceived ideas. In the matter of physical signs, however great the authority of previous examiners, one's own individual judgment should be formed. In the words of Sir Adolphe Abrahams, "None of us ought ever to be offended at the scrutiny of our observations. If we are right our view will be confirmed; if we are wrong it is best to be corrected; and if it is a matter of interpretation, difference of opinion is legitimate." Naturally, to appear to cast doubt upon the value of a colleague's observations by repeating his examination is liable to give offence. Yet the unquestioned acceptance of his results may lead to disaster. He may have examined the rectum with his short finger and found nothing. I may follow with my long finger and feel quite a lot.

*Avoid Obsessions.*—The specialist is naturally prone to dwell upon the particular features of his speciality, and only a good general training can combat the perpetual tendency towards this obsession and preserve a proper sense of values.

Charcot constantly told his students, "We see only what we are ready to see. We eliminate and ignore anything that is not a part of our prejudices." There are specialists who see only what they have always seen and what they want to see. To some tuberculosis officers no lung is sound. Many a man who works in a venereal clinic is convinced that 95 per cent. of people in the street have syphilis. Then there is the psychologist who knows for certain that every adult man he sees is ill because as a child he fell in love with his rocking horse in the nursery. In England some doctors in hospitals for tropical diseases label as sprue all cases of chronic abdominal illness which they cannot explain.

The general practitioner also is liable to obsessions. I can recall a man whose wisdom was tempered by emphysema and chronic bronchitis. He went radiantly through life projecting into patient after patient his own disease. In return he reaped a full harvest of false physical signs which led him invariably to miss pulmonary tuberculosis and carcinoma of the lung.

*Patients with Symptoms but Few Signs.*—Where patients have symptoms but few signs, we must exercise special care and judgment in diagnosis.

A woman of 55 presented with wasting, low colour-index anaemia and bouts of fever. A subphrenic abscess showed up four months later.

A woman of 33 was sent away from the surgical out-patient department with liniment to rub her back. Actually the pain was root pain, and two weeks later a typical Brown-Séquad palsy appeared. By laminectomy an ecchondroma of an intervertebral disc was successfully removed.

A man of 55 was sent to a chest hospital for supposed left-sided pleurisy, then to a heart hospital for supposed cardiac pain. Admitted six weeks later to a general hospital, he was found to have compression paraplegia due to multiple myeloma causing collapse of vertebrae.

A man of 48 presented with sciatic pain and pain in the pelvis. This was extremely severe and prolonged, and he obtained no relief from heat treatment. After six weeks, convinced that all symptoms were exaggerated, the house physician wanted to send him out. But three weeks later still further X-rays showed collapse of a lumbar vertebra. Flaccid paralysis of both lower limbs developed. Necropsy showed a tiny primary carcinoma of the lung with secondary deposits in the spine.

*Significance of Co-existing Disease Entities.*—It is a mistake to go about diagnosing rareties. We should remember the wise statement of Dr. Samuel Gee, "Common things most commonly occur." In England occasionally we see a patient who is suffering from two or more disease entities at the same time. Careful thought and good judgment may then avert unnecessary suffering. In the practise of medicine in African tribal areas, where parasite infestations are common, the doctor who makes a double diagnosis is usually being conservative. In England mistakes in double diagnosis are more likely to arise in acute cases than in chronic.

A general practitioner sent for a surgeon to see a boy of 12 years of age with acute appendicitis. The surgeon disputed the diagnosis and said there must be something wrong with the chest because the temperature was too high, namely, 103° F. The general practitioner insisted and acute appendicitis was found and successfully operated upon. Next day the boy had the typical rash of measles. Supposing he had been seen with the rash already present, the fateful co-existing acute abdomen might have been missed.

Benign hypertension is so common that it may not be the cause of the symptoms of which the patient complains.

A woman of 58 had haemoptysis. The B.P. was 240/130. An X-ray of the chest showed a large carcinoma of the lung invading the hilum.

Sometimes even where the W.R. is positive a given entity may be nothing to do with syphilis—for example, in ruptured aneurysm of the circle of Willis with subarachnoid haemorrhage the arterial lesion is congenital. If a man has the physical signs of fibrosis of one lung with a positive W.R., the condition is not syphilis of the lung. The so-called weeping aneurysm is often found to be pulmonary tuberculosis co-existing with syphilitic aortitis.

A man of 45 suffered from retro-sternal pain and haemoptysis. The aortic second sound was accentuated and the W.R. positive. There were signs of consolidation at one apex and the sputum was positive for T.B.

A man of 42 attending the out-patient department complained of dyspeptic symptoms, including epigastric pain. I diagnosed the condition as due to extensive pulmonary tuberculosis, which was confirmed by X-rays. He went to a neighbouring hospital and later on wrote me a letter grumbling that I had missed a big gastric



ulcer which had since been treated by partial gastrectomy.

*Proper Use of Accessory Methods.*—No one doubts that laboratory tests and X-rays are generally valuable and often invaluable when used in the proper relation to diagnosis. It is really a question of perspective. A friend of mine, a pharmacologist, fell sick during a visit to the U.S.A. Asked how he liked being in hospital, he said the nurses and doctors were very kind. Describing the periodic visits of the doctors, he said, "They took no notice of me, but held earnest discussions of what was printed on the coloured papers. Then they turned to me and told me how I was."

The clinical pathologist observing things from his laboratory can tell by the nature of the requests sent to him which doctor is properly trained as a clinician. Many a man to-day who knows little about history-taking and less about physical signs bombards the laboratory and X-ray room for a penny-in-the-slot diagnosis.

In a teaching hospital in London a man complaining of attacks of abdominal pain was sent to the X-ray room. Asked in the dark to hold a cup of opaque emulsion, he fell to the ground. The radiologist sent a curt note to the lazy houseman, who had neither taken a full history nor made a clinical examination: "Should you find the opportunity to examine this patient, you will discover he has *tabes dorsalis*"—and of course he had.

Examples of the great value of accessory tests are numerous. A man with dyspepsia is found to have the high blood urea of chronic nephritis. The woman X-rayed for gallstones is found instead to have a large renal calculus. The man with tender bones is found to have secondary carcinomatosis of the skeleton. A woman with the symptoms and signs of collapse of a thoracic vertebra is found by sternal puncture to have multiple myeloma.

*Ordering a Laboratory Test.*—Whenever we order a laboratory test we should make an attempt at rational thinking:—

- (1) I order this test because according to the *Readers' Digest* it is now the done thing.
- (2) I order this test because if it agrees with my opinion I will believe it, and if it does not I shall disbelieve it.
- (3) I do not understand this test and am uncertain of the normal figure, but it is the fashion to order it.
- (4) When my chief asks if I have done this or that test, I like to say yes, so I order

as many tests as I can to avoid being caught out.

- (5) I have no clear idea what I am looking for, but in ordering this test I feel in a vague way (like Mr. Micawber) that something might turn up.
- (6) I order this test because I want to convince the patient there is nothing wrong, and I don't think he will believe me without a test. (Asher, 1954.)

*Interpretation of Tests.*—The timid clinician is sometimes inclined too readily to distrust his own judgment and to yield to dogmatic pronouncements from X-ray room or laboratory which do not fit in with his clinical findings. It is well to remember that specimens and X-rays are sometimes mixed up and submitted with the wrong patient. And of course clerical errors may occur in typing reports. But pathological and radiological reports are themselves only expressions of opinion; besides, radiologists and pathologists vary greatly in skill. Experience is of course required in the interpretation of certain reports. For example, a patient with high intestinal obstruction often shows a rise in the blood urea which drops when the obstruction is relieved. Everyone knows that carcinoma of the colon and even carcinoma of the oesophagus are not to be ruled out merely on negative X-ray findings. And very often X-ray methods reveal a lesion which is not the cause of the symptoms under consideration—for example, diverticulosis of the colon.

*Revision of a Diagnosis.*—In a chronic case we must not hesitate to revise the diagnosis from time to time. Things may change and new signs appear which put a totally different complexion on the matter so that the original and provisional diagnosis may no longer be able to stand. Occasionally expediency decides our choice of action. Even if, of two possibilities, one is the commoner but not amenable to treatment, common sense demands for practical purposes that we deal with the patient as if he were suffering from the less common but more hopeful lesion. The classical instance is where a patient has pernicious anaemia closely resembling carcinoma of the stomach.

#### D.—FACTUAL KNOWLEDGE

Clearly knowledge and experience are both essential to accuracy in diagnosis. Whatever impression some clinical teachers may give to the contrary, we can say at once that ignorance is the least important cause of mistakes in diagnosis. Ignorance is a matter of degree; it

may be condonable or utterly inexcusable. Presented with a case of severe melaena in a boy of 10 years of age, we must condone ignorance of the fact that a peptic ulcer arising in the ectopic gastric mucosa of Meckel's diverticulum could be the cause of the symptoms and signs. But it is utterly inexcusable that a practitioner should continue to make errors in the diagnosis of neurological cases because he has never grasped the difference in physical signs between lesions of the upper and lower motor neurone.

*Grasp of Fundamental Facts.*—A man well trained in the *post-mortem* room begins to be entitled to call himself physician, for he has learned what does in fact happen as opposed to what might happen. He knows that the second commonest accidental finding at necropsy is the scar of a duodenal ulcer. Appreciating the anatomical nature of syphilitic aortitis, he knows that it can never cause aortic stenosis, but only aortic incompetence. He learns that hepatic insufficiency can occur without jaundice and with a clinical history like uraemia. He recognises that certain anatomical anomalies may occur which have no bearing whatsoever on the diagnosis of a case—for example, Riedel's lobe of the liver.

*The Ways of the World.*—We must beware of too deep an innocence of the habits of our fellow creatures. Nobody expects the young doctor to be so versed in the ways of the world that he should never make a mistake out of innocence. We must remember that pregnancy cannot be excluded because the patient says it is impossible, or because of her social position, or because she is unmarried, or a widow. Neither is blue-eyed innocence evidence against venereal disease; quite the contrary. Aortic aneurysms, of course, are always due to syphilis, except in one's own relations. Sir Norman Walker used to say, "The social status of the patient must never lead us to overlook syphilis, for you must remember that every bishop has been an undergraduate and every admiral a midshipman."

*Learning From Mistakes.*—It will be readily agreed that we learn little or nothing from the mistakes of others. The young doctor must learn by his own mistakes. At first he calls a child mentally defective when it's only deaf. And then he mistakes the full bladder for a pregnant uterus, although he does this only once. He learns how difficult it can be to decide whether a man is dying of cerebral haemorrhage or is merely drunk. At first he forgets that wax in the ears can be the sole cause of deafness or

vertigo. And the first time he sees a child with convulsions, fever and meningism due to otitis media he omits to examine the ear drums.

*Knowledge of Patients.*—We would all accept the fact that a man or woman cannot be expected to become a skilful practitioner of medicine in the six years allotted to the medical curriculum. Medicine is not a trade to be learned, but a profession to be entered. It is an ever-widening field demanding a lifetime of continuous study and long experience in close contact with the sick. Experience of the sick should forever be the doctor's text books. We should get to know the man who is ill, to understand his environment and with what emotions he reacts to it. It is because of his inadequate knowledge of men that the beginner in practice is at a disadvantage compared with his colleagues. He may know more of everything that pertains to diagnosis up to the point that may be called the veterinary level; yet, falling short in his knowledge of human character, he may prove the less useful doctor (Houston, 1936).

*Knowledge Bought Dearly.*—The art of diagnosis demands in addition to skill and wisdom a lavish expenditure of time, sympathy and understanding. The good doctor knows his patients through and through. His knowledge is bought dearly, but he finds his reward in that personal bond which forms the greatest satisfaction in the practice of medicine. There is a well-known Hippocratic saying that "to know the nature of men one must know the nature of all things." We should remember that Pope said, "The proper study of mankind is man," with which is incorporated woman. Armand Trousseau said: "*Il n'y a pas de maladies, il n'y a que des malades; il faut voir, toujours voir, des malades.*" There is a wise French saying that whereas the study of medicine may make a learned man, nothing short of prolonged devotion to patients at the bedside suffices to make a doctor. And lastly, I know you will concede to the public a right to demand that its doctors be cultured men and women. Then let me remind you of the maxim of an old Spanish physician, "If you only know medicine, you don't know that."

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