done to determine exactly what value radon has in the treatment of gout.

The erythrocyte count, however, showed a tendency to fall when large doses were employed, in certain instances to a serious degree. It appears, therefore, that with large dosage the administration of radon is attended by definite risk, and it should be administered with great caution.

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PSYCHOLOGICAL FACTORS IN RHEUMATISM

A PRELIMINARY STUDY

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PART I

Psychological factors play an important part in initiating and maintaining illness, especially those forms of illness which are grouped under the heading of general medicine. This is widely accepted, but is vaguely understood. This paper is therefore prefaced with a brief account of the ideas underlying the term "psychological factors" as related to illness.

Psychological Factors

An individual enters the world with a particular structure, a particular chemical and physical make-up, and a particular mode of behaviour. This idea is sometimes put in another way by saying that he inherits a certain constitution (which refers especially to structure), a certain diathesis (which refers especially to chemistry and physics), and a certain pattern (which refers especially to behaviour). Among the patterns which he inherits from his ancestors, his race, and his species are those which drive him to behave as a human being. These patterns of behaviour are often called instincts. They include the deep-seated instincts common to all animals—namely, those of self-preservation—with the drives to eat, to drink, to fight, and to escape; and those of sex—with the drives in the earlier years to love the mother, and later to mate and to succour the offspring. The more distinctively human tendencies include the drives to create and to construct in the physical world of things or in the mental world of ideas.

As an individual grows in time he meets things, forces, and happenings to which we give the name "environment." As he meets new factors in his environment he reacts to them, and sometimes he reacts in such a way that he is described as ill. Illness is not an external object which a person "catches," but is a reaction on the part of the individual to factors of his environment. The environmental factors which provoke a reaction of illness belong to two groups. First, there are those which the individual meets by direct contact of his body tissues. These include the physical agents of mass (which causes trauma); of light, heat, wet, and cold; chemical agents such as drugs, poisons, and foodstuffs; and biological agents such as micro-organisms. Secondly, there are the factors which frustrate, or threaten to frustrate, the instincts and drives of the individual, as, for example, the death of a loved person, being jilted, financial loss, or

unsuitable occupation. The individual does not encounter such factors by direct bodily contact but through his mind, and because of this they may be called psychological to distinguish them from physical factors. The study of how the individual reacts by illness to psychological factors is called psychopathology. This science is still in its infancy, and is complicated. However, from the standpoint of general medicine it is convenient to consider the problem in simple terms, and we can increase our understanding of illness enormously if we realize that when the instincts are frustrated emotion is manifested.

Emotional Reaction

The bodily mechanism of emotion consists of the triad of the primitive brain, the autonomic nervous system, and the endocrine glands. By means of this mechanism psychological factors may affect an individual profoundly, bringing about changes in chemistry, rhythm, secretion, and even structure in the whole of the body or in any part of it. This may be illustrated by considering the emotion of grief, which is the response to the loss of a person or object that has been loved.

The acute phase of grief may last for days or for weeks, and is spasmodic or paroxysmal in its effects. The symptoms are numerous, and vary from person to person. They may involve every vegetative system of the body. The classical symptoms include tears, sobs, choking sensations, twitching of the lips and hands, pulling down of the corners of the mouth, obliquity of the eyebrows, a general sense of coldness, distaste for food (especially flesh foods and milk), with a feeling of the food sticking in the gullet, and the "heart turning to stone" or "breaking." This last is a feeling as if some foreign body like a lump of rock or iron lay heavily under the left chest wall, and with each movement, or even with each respiration, dull jags are experienced as if the heart were a stone with broken edges. Also, and this is a point of importance to the subject-matter of this paper, the sufferer between the paroxysms of grief feels sore and stiff as if he had been thrashed.

With the passage of time these bodily disturbances may subside; on the other hand, one or more of them may be maintained in the original or in a modified form. For example, in the respiratory system the chokings and sobs may merge into asthma; in the cardiovascular system the pain of the broken heart into angina and palpitation, and the coldness into vasomotor disturbances of the extremities; in the alimentary system the loss of appetite and the sticking of the food may merge into anorexia, regurgitation, vomiting; and in the locomotor system the soreness and the stiffness may merge into "rheumatism." I have seen examples of all these among insured patients who had never suffered from any of those disorders until they had encountered a bereavement and reacted with the emotion of grief.

In such instances the patient's attention was no longer focused on his bereavement, but was dominated by his symptoms, which he interpreted as evidence that he was diseased in the part of the body affected. It may be added that it is doubtful if grief ever occurs in pure form. It is almost always accompanied by anxiety, which is associated with other emotions, such as fear (for example, concerning the future), resentment (for example, against a person, an institution, or even a mental concept such as justice or the idea of God), and a sense of guilt. Regarding the last, Charles Darwin (1872) wrote: "Under the sudden loss of a beloved person one of the first and commonest thoughts which occurs is that something might have been done to save the lost one—'It was my fault, and I should never have left him.' . . ." Similarly also Groddeck (1929), a German physician who was one of the first medical men to take an interest in psychological factors in organic disease, wrote: "In our civilized society everyone whose mother has died believes that he or she is guilty of her death, believes it even when the mother has died in a place far removed." The bodily effects of anxiety are not infrequently found in psychoneurotic

states which merge from a bereavement, and they take their usual forms of tachycardia, taches, facial pallor, sweatings, giddiness, tremors, etc.

Diagnosis and Rheumatism

When we were students at the medical schools the emphasis of clinical teaching was on diagnosis—the identification of the disease. The chief question to be answered was: "What disease has the patient got?" At that time we did not notice the anomalies of the answers. One patient would be said to have "got" an abnormality in his structure—for example, a gastric ulcer; another an abnormality in his chemistry, such as hyperchlorhydria; another an abnormality in his rhythm, perhaps tachycardia; another an abnormality in his sensation—for example, a headache; another an abnormality, which was presumed but never demonstrated, such as nerve weakness, toxæmia, or being "run down." One of the diseases which a patient might get was rheumatism. Sometimes this term referred to demonstrable structural changes, as in the case of fibrositic thickenings, or the abnormalities of rheumatic fever; but the word was often applied to any patient who complained of pain and stiffness in the musculature in the absence of demonstrable structural or chemical changes. The word "rheumatism" is a label—convenient, comprehensive, scientifically vague.

We were taught also to ask another question—namely, "What has the patient met?" I do not know if the question was ever put in these actual words. As a rule it was framed by asking, "What are the aetiological factors?" Inquiries into aetiology were confined to the physical factors which the patient had encountered, such as trauma, heat, cold and wet, dietary, poisons, and micro-organic invasion. No investigation was made into psychological factors. This was unfortunate, because to limit aetiological inquiry to physical factors is to misunderstand the meaning of illness. The limitation has been and still is the occasion of many unnecessary failures in orthodox medicine. For example, when inquiries are made into psychological factors the disease labels already mentioned frequently "make sense"—that is to say, they become understandable as manifestations of emotional reaction.

To know what a patient has *met* is often of more practical value than to know what a patient has *got*. Aetiology, which regards the individual as a whole, may be of more importance than diagnosis, which, disregarding the individual, concentrates on fragments of his anatomy, pathology, physics, chemistry, sensation, and so on. The questions of aetiology are concerned with the integrated individual, and include:

1. What kind of person is this? That is to say, with what constitution, diathesis, or pattern did he enter the world, and how has that been modified by his environment, both physical and psychological?

2. Why of all the days and weeks of his life did he begin to take ill when he did? This is an inquiry into the environmental factors he encountered about that time which were of a potency and nature likely to cause him to react by illness.

3. Why did he take ill in the manner he did? For instance, why, after a bereavement, does one person remain well, another develop asthma, another disordered action of the heart, another gastritis, another hyperthyroidism, and another rheumatism?

It must be admitted that full answers to these questions are not possible in our present state of knowledge. However, by framing our inquiries along these lines much light can be thrown on the illness of individuals and also of communities. To illustrate the application of these questions in a simple way an example may be quoted of a patient who had "got" rheumatism.

The date of the examination was July, 1935. A single man, 22 years old, who had been on the sick list since March 12 because of severe pains in the right chest, labelled "pleurodynia," complained of weakness, giddiness, sweating, and loss

of appetite. His doctor had considered that he might have tuberculosis, but the x-ray examination was negative in this respect. His face was pale and worn, and his eyes had a frightened expression. He had tremors of the outstretched fingers, and tachycardia. There was no anaemia, the haemoglobin percentage being 100. The only structural abnormality was a scar below the right scapula, which was the result of falling on a spike four years previously.

Discussion of Diagnosis

The results of examination suggested that the diagnosis of pleurodynia—a change in structure—was possibly correct. The result of general examination indicated that there was disturbance of the autonomic and endocrine systems of a kind that is often diagnosed as hyperthyroidism—a change in chemistry. If we regard a patient not as an individual but as a "case" which contains fragments that can be labelled, we might say, using the jargon, that here was a "case of pleurodynia and hyperthyroidism," and that "appropriate treatment" for these "conditions" comprised massage, sedatives, and perhaps iodine. Now it is curious but true that when we find ourselves using the words "case" and "condition" it is a sign that we have ceased to think further about the problems presented by the patient. Only by discarding these two terms from our vocabulary, and using the terms "person" and "reaction," can we hope to increase our understanding of illness.

Discussion of Aetiology

1. *What kind of person was he?* Physically he was well built and well nourished. Mentally he was intelligent, and was ambitious to get on in the world.

2. *Why did he fall ill when he did—namely, in March?* After leaving school he had entered an ironmonger's shop and had remained there as a shop assistant. He was not happy and felt that "there were no prospects." However, he was continually on the lookout to "better himself," and early in December, 1934, he applied for a position of commission agent which he had seen advertised in the papers. In January he was interviewed, and was told that he was accepted. He immediately resigned his position in the shop. Unfortunately, in his eagerness he had omitted to understand that he would require to provide a capital sum of money before entering on his new duties. He failed to raise the necessary funds, and was informed that he could not become an "agent" without them. He was unable to obtain other employment, became sleepless, went off his food, and suffered from palpitation and weakness. His mother suggested that he might be "in for a decline." At first he refused to see his doctor, but early in March he developed severe pains in the right chest, and was put on the sick list with a diagnosis of pleurodynia.

3. *Why did he fall ill in the way he did?* He took ill with an anxiety state in January, and with pain in March. The reason for the pain being attached to the right side of the chest was probably twofold. First, he had been injured there, and this part of the body was structurally inferior. Secondly, his mother had suggested that he might have tuberculosis, and this fear had directed his attention to the chest.

4. *Had he any purpose in being ill?* His illness acted as an explanation of why he was not working and why he had failed to obtain work.

Comment

Although this man had previously encountered trauma, and, as a result, his structure was inferior at a certain site, he continued working and was free from symptoms for years. He developed symptoms and ceased working only when he met certain psychological factors, which, by frustrating his particular drive, provoked severe emotional reaction. The pain which he then experienced became attached to the site which was structurally inferior.

Pain as an Expression of Inferiority

To encounter a disease or an injury includes not only the experience in the body but also the experience in the mind in the form of knowledge or fear.

Knowledge and fear of morbidity are acquired in popular beliefs; in attending hospitals; in reading; in meeting doctors who talk about "conditions" and "slight weakness" and who give labels to patients in the absence of probability; and also in seeing relatives, friends, or fellow workers affected with certain diseases. A common disease encountered mentally is kidney trouble. Many persons who experience backache, whether through fatigue, physical exertion, or anxiety, become afraid that they have kidney disease. Every doctor in practice knows how patients who come to consult him about pain in the back almost invariably bring with them a bottle of urine, whereas it is very rare for patients with other complaints to do so.

These encounters, however, do not bring about emotional reaction unless the patient is for some reason or other already anxious, and therefore suggestible. For example, a workman will become ill with pains in the abdomen and be labelled "gastritis" after a fellow workman has told him how he had an operation for gastric ulcer, and has demonstrated to him his "belly slit open from here to here," but he will not usually do so unless he is already harassed by domestic, financial, or occupational difficulties. Pains associated with fears of disease not uncommonly appear, especially at first, when the patient is sleeping, and they wake him a few hours after he has gone to bed. Nocturnal onset is a characteristic of symptoms of emotional reaction, not only of pain, but of other bodily disturbances, such as numbness, cramps, loss of power, itching, choking sensations, and palpitation. It may be described in psychological terms by saying that the disagreeable situation and the associated emotions are repressed by the waking mind, but when conscious control is relaxed during sleep the disturbing situation is free to manifest itself in the form of dream imagery and the associated emotions in the form of bodily disturbance. To sum up, inferiority may be inherited or acquired. Acquired inferiority may be either physical, or mental in the form of knowledge and fear.

Pain and Stiffness as Symbols

We have considered how a site may be chosen for pain because it was "inferior" either in a physical or in a mental sense. There is, however, another way whereby a symptom may be attached to a part of the body, and the mechanism involved is known as symbolization. A symbol is something which stands for a mental experience; it represents what a person perceives or feels or desires or thinks. Words, whether written or spoken, are examples of symbols. Thus when the word "hen" is uttered we understand by that sound a certain perceptual experience of shape, colour, sound, and smell. Body gestures are also symbols. If a man in silence spits at a person who is walking along the street that gesture is a symbol which is readily understood. It expresses his feelings towards the person—namely, disgust and contempt; interpreted in verbal symbols—translated into words—it means, *I do not want you: I am ejecting you*. The use of spitting as a symbol of contempt is common to the human species independent of time, place, or spoken language; it is valid from China to Peru; and in that sense it may be described as a species, or "collective," symbol.

Bodily symptoms may also represent symbols which, when correctly interpreted, tell a great deal about what the patient has perceived, has felt, has desired, or has thought. For example, we have already discussed how a complaint of jaggings pains and dull weight in the region of the heart may mean: *My heart is sore; my heart is heavy; my heart is broken*. The symptom of pain in the absence of an organic "cause" may be a symbol which signifies: *My feelings are hurt*. For example, I remember a decent working man, aged 50, who had complained

of generalized pains and stiffness, had been labelled "rheumatic," but who showed no evidence of structural changes. Inquiry showed that he had worked with the same firm from the age of 14, and that about three months before the onset of his illness he had been dismissed owing to cutting down of staff. After relating the story of his dismissal he himself interpreted his symptoms by saying "Aye, doctor, I took it ill; I felt it sore after all these years with the firm; I thought it stiff."

Note.—Such symptoms have been called body language—the person is relating his mental experiences not in verbal symbols but in terms of bodily dysfunction. Thus vomiting may mean: I am sick of something or somebody. Coughing may mean: There is something inside me, and I cannot cough it up. Fainting may mean: I am faint-hearted. Frequency of micturition may mean: I am in a piddling funk. The list is endless, and extends from the crown of the head (light-headedness and giddiness, meaning: I am uncertain which way to take so I go round and round) to the soles of the feet (I am footsore and weary). Interpretation of such symbols is sometimes difficult, but sometimes it is surprisingly easy. For instance, there was the woman who complained of "something sticking in her throat." She was thoroughly examined by throat specialists and no structural changes were found. Inquiry into psychological factors showed that her symptoms began three months previously, after a neighbour had called her a prostitute. The interpretation of her symptoms is: I received an insult; I failed to swallow it; it is still sticking in my throat. Again there was the woman who had lost her voice. Inquiry showed that she was a good-living Churchwoman, and that she had lost her voice after learning that her unmarried daughter had fallen pregnant. The interpretation of this symptom is: It is unspeakable; I cannot talk about it; no one must hear it. Then there was the man who complained of continuous vomiting, which dated from the imprisonment of his son, who had always been a source of difficulty. His vomiting signified: I am sick of him; I am spewing him out of my mouth because he is not my son and does not belong to me any more.

Limitation of Movement as a Symbol

The gesture of spitting has been mentioned as a collective symbol of contempt and disgust. It is an example of what Darwin (1872) called an "expressive action." He wrote: "The chief expressive actions exhibited by man and the lower animals are innate or inherited. The young and old of different races, both with men and animals, express the same states of mind by the same movements. Such movements cannot be said to depend on the will of the individual." Limitation of such expressive movements, associated with pain and spasm of the musculature, may also be symbolic. An interesting example is limitation of spinal movement. The spine is the part of the body which holds the human individual erect, and in the mind of the species—the collective unconscious as it has been called—the spine signifies ideas related to uprightness and pride. "A proud man," wrote Darwin, "exhibits his sense of superiority over others by holding his back and head erect." (So also does a dog. I remember observing the behaviour of my fox terrier after he had killed his first rabbit. He swaggered with pride. His body arched earthwards "with the muscles all a-ripple down his back" and his head was "in the air.") In the following description of limitation of spinal movement the lumbar region and cervical regions are considered separately, although, as we shall see, the symbolic significance is fairly similar.

Lumbar Limitation

A complaint of pain and inability to bend is, in the absence of structural change or "inferiority" not infrequently a symbol. Sometimes it signifies: *I am an upright man; I do not stoop to do such things; they are beneath me*. Sometimes it means: *I am a proud man; I do not bend; I do not lower myself; I am above these things*. It will be noticed that there is little difference between the upright man and the proud man; they both act in the same way and say the same things. Pride, in its extended sense of superiority, includes not only uprightness but also independence and self-respect. Patients ill

with psychoneurosis who develop these complaints are usually labelled with the word "lumbago." Instances of such "lumbago" are not uncommon in individuals whose *pride has been hurt*, as, for example, in persons who through unemployment are compelled to take up an occupation which is beneath them; also in individuals whose *rigid independence* has prevented them from applying for public assistance.

Two examples of symbolic lumbago may be given:

1. A shop assistant, aged 40, was labelled "lumbago." He complained of pain right across the lumbar region, and said he "felt as if he could not bend." His symptoms of pain and stiffness began in June, and he had been on the sick list for two months. There was no evidence of structural change, and I could trace no "inferiority." He showed objective signs of an anxiety state.

Discussion of Aetiology

1. *What kind of man was he?* He was an upright man and an elder of the church.

2. *Why did he fall ill in June?* In April he had met a commercial traveller who advised him to "put his shirt on a horse." He had never betted before, but on a sudden impulse decided to follow this advice. He borrowed £10 from a moneylender. The horse did not get a place, and the man was faced with a debt of £10. His wife, an ardent churchwoman, was in charge of their finances, and he always gave her most of his weekly wage. He was afraid to tell his wife about his "fall"—what would she think of me?—and he saw no prospect of meeting his debt. He became sleepless and weak, went off his food, and a few days later declared sick with "lumbago."

His inability to bend was a symbol which involved the two related ideas of uprightness and pride. On the one hand it may be interpreted: *I am an upright man and do not stoop to low pursuits such as betting*; on the other hand it signifies: *I am a proud man and cannot lower myself by telling my wife*. It was clear that he had to lower himself. We discussed his situation, and after "breaking down" he was able to bend quite freely. He left with the intention of confiding in his wife.

Note on Breaking Down.—Patients who have suffered from "rheumatism" with inability to move a joint, and who show no organic change, sometimes on telling the story of the psychological factors they have met and their reactions to them may become able almost at once to move the affected joint freely. For example, I saw a man in the late fifties who for one and a half years had continuously attended the out-patient department of an infirmary for "fibrositis" of the back and "adhesions of the right hip." He had undergone massage, electrical treatment, diathermy, radiant heat, and dental extraction, and protein shock was now being considered. He was calm and detached, and talked about his symptoms as if he were a medical teacher describing a "case." On investigation as to why he should have taken ill when he did, it appeared that he had been in good health until after he had lost his wife, when he became sleepless and went off his food. In short, he developed chronic emotional reaction out of which his rheumatism had emerged about six months later. He sobbed and cried as he related his feelings following his bereavement. With encouragement he was able to bend his back freely. Also the right thigh, which previously could scarcely be moved, became slack and attained very quickly its full range of movement. It was not localized "adhesions" and thickening of fibrous tissue that required "breaking down" but the individual himself.

2. A house painter, aged 26 and labelled "lumbago," who complained of dull aches in the lumbar region, said he "felt that when he was down he could not rise." His symptoms of pain and stiffness began in October, and he had been on the sick list for three months. There was no evidence of structural change, and I could trace no "inferiority." He showed objective signs of an anxiety state.

Discussion of Aetiology

1. *What kind of man was he?* One would not be justified in describing him as either upright or proud, but rather as flexible and simple of heart. Five years previously he had married on the strength of having obtained a "permanent job with a good firm." He had limited his family to one child in order to "give the boy a better chance in life than his father." He was an enthusiastic Territorial. He often worked about his house, and liked to see it nice.

2. *Why did he fall ill in October?* In June a most unusual thing happened. He was sent to prison for three months because in a political argument he had struck his opponent. Strange to say, his imprisonment did not depress him: "Everyone knew the sentence was unfair." On his release in September he called on his firm confidently expecting to resume his "permanent job," but he was told that the situation was filled and that he need not apply again because "the management would not employ criminals." He attempted with great hope and energy to seek a new situation, but without success. His job was gone, his "nice" house was going, and his boy was not going to get "his chance in life." He became anxious and depressed, and early in October he noticed that after putting on his boots in the mornings before going out to seek for work he experienced pain and stiffness on attempting to rise, and this had persisted. During our conversation he was led to discuss the interpretation of his symptoms—namely, *"Life is stiff and I am feeling sore; I am down and out; try as I will, I cannot rise"*. After this, and with reassurance, his movements became free and he agreed he could work if he had employment available.

Note.—Another complaint referred to the back is "weakness," and this is sometimes a symbol which may be interpreted: *I am spineless and have no backbone; I do not stand up to things; I want to lie down to them*. Examples of "back weakness" are seen in persons who are continually losing their employment because of illness which is psychoneurotic but not always recognized as such. I remember one young woman who within a span of two years had been in turn domestic servant, cinema attendant, shop assistant, factory hand, and nursemaid, and who on each occasion lost her situation because of illness which necessitated lying down in bed. The labels of these illnesses were: lumbago, debility, fibrositis, anaemia, and rheumatism.

Cervical Limitation

The neck is concerned in many expressive movements. We have already noted one of these—namely, the action of pride in which the neck as well as the back is involved. The proud man "holds" or "carries his head high." The upright man, like the Pharisee who considered that he was not as other men, "lifts up his eyes unto heaven." The neck is also notably concerned in movements signifying affirmation or negation. To nod the head as a sign of affirmation and to shake it from side to side as a sign of negation are actions which are widespread among the human species, although according to Darwin they are not universal, and depend, apparently to some extent, on social usage.

A sign of negation which is, however, "practically universal" and probably innate is the sudden throwing back of the head. This action as a gesture of negation is largely blurred in adults of this country as a result of training and social habit, but it can be observed very clearly in young children. When a child not yet able to talk says "No" to what is offered—whether it be food or a toy, a suggestion or a command—he signifies his refusal by violently throwing back his head; indeed he may assume the position of opisthotonos. If he continues to say "No" by persisting in holding back the head we describe him as obstinate or stubborn, or, as the translators of the Authorized Version of the Bible put it, stiff-necked. We may recall the New Testament phrase about the "stiff-necked generation" and the line from Isaiah: "they obeyed not but made their necks stiff."

The neck in the collective unconscious represents ideas relating not only to pride (and its correlatives uprightness, independence, and self-respect), but also to refusal, obstinacy, and self-will. A complaint of pain and stiffness in the neck with inability to bow the head is sometimes found to be an attitude of refusal—a symbol which signifies: *I am stiff-necked; I cannot bow my head; I resent this person and this situation; I am obstinate and self-willed.*

Here is a point of special interest. If anyone cares to adopt the "attitude of refusal" and to persist in it—that is to say, if he throws back his head and shoulders and maintains the position for several minutes he will experience dull and cramp-like pains which are most marked in the region between the upper parts of the scapulae. This is a not uncommon site for a complaint of aches and pains with no discoverable organic basis. Inquiries into psychological factors not infrequently show that pains in this site develop in the course of an anxiety state and are an expression of pride (in its extended sense of superiority) and of refusal, resentment, or obstinacy. Such pains occur perhaps most typically in married women who become widowed and are faced with the prospect of living in reduced circumstances or of taking up some occupation as a means of livelihood, but they are also to be found when a person for any reason "gets it in the neck."

Note.—To "get it in the neck" is a slang phrase with which everyone is familiar. A person is said to "get it in the neck" when he receives a definite shock to his happiness, his comfort, or his security as a result of encountering some deprivation or misfortune. Also, perhaps, there is a suggestion that the deprivations and misfortunes are not single but multiple. I have been unable to trace how or when the phrase arose, but it was certainly extensively used during the Great War. Whatever its origin its aptness has been recognized and its use is now widespread. The reasons for this are probably to be found not so much in any conscious associations (as, for example, with hanging or with the guillotine) as in unconscious associations. A man who meets with a deprivation may do one of two things. He may resent it or he may accept it; if he resents it, he throws back his head; if he accepts it, he bows his head. Whichever he does the neck is involved.

Another slang phrase involving the use of the word "neck" is: "X gives me a pain in the neck," or, more commonly, "X is a pain in the neck." This apparently nonsensical phrase has obtained a wide currency. It means that X is found to be a depressing or boring individual and is not acceptable. Thus if someone in a company refers to X and another person says "Oh, X! He's a pain in the neck!" and it can be noticed how everyone throws back his head and no one mentions X after that. In this way X is refused admittance to the company with a "No" symbolized both in slang and in gesture.

Examples of cervical limitation and pain are included in the following serial investigation of patients with "rheumatism" involving the neck and shoulders.

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[To be concluded.]

Dame Frances Mary Ryall, widow of Sir Charles Ryall, C.B.E., F.R.C.S., died on October 24, 1936, leaving £66,479 (net personalty £61,351). Her bequests include: £5,000 to the Royal College of Surgeons of England in memory of her husband, to provide a Charles Ryall scholar or assistant in the Museum or Library, or for the promotion of the study of cancer or other diseases; £1,000 each to the Royal Cancer Hospital, Fulham Road, S.W., and the Royal Masonic Hospital to endow a bed in each in memory of her husband; £1,000 to the Bolinbroke Hospital, Wandsworth Common, S.W., in memory of her husband; and £1,000 to the Royal Medical Benevolent Fund.

PLASMODIUM OVALE INFECTION CONTRACTED IN DIFFERENT PARTS OF WEST AND CENTRAL AFRICA

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Laboratory Technician

Although probably *Plasmodium ovale* infections in man are widely diffused throughout Central Africa, having now been reported from a wide belt extending from Northern Nigeria to Kenya Colony, yet remarkably little has been written upon the distinctive clinical manifestations which tend to differentiate it from infections with other forms of malaria parasites. At the present moment *P. ovale* appears to be purely an African species, and there is only one exception to this in the case reported by P. Mühlens from "Western South America." N. H. Fairley (1933), in the record of his case, appears to be the only authority who has paid special attention to the clinical aspects of the naturally acquired infection with *P. ovale*.

Four cases of this infection have occurred in the course of practice during the last two years, two in males and two in females. The infection had been contracted respectively in Uganda, Nigeria, Belgian Congo, and Sierra Leone. The main clinical characteristics, so far as could be ascertained, are the comparative mildness of the infection and the almost invariable recurrence of the rigors and fever during the course of the evening in contradistinction to the usual morning rise of temperature in other species of malaria. Abdominal pain referred to the appendix area had led to a diagnosis of appendicitis being made on clinical grounds in three out of the four cases, whilst in the fourth the pain was referred to the left loin, and was thought to be due to a renal calculus. Subsequent to operation for the appendix rigors occurred and resulted in the demonstration of typical *P. ovale* parasites in the blood.

This observation may be considered to be of some practical importance, although the same phenomenon of "pseudo-appendicitis" has frequently been observed in *P. falciparum* infections. Another clinical characteristic of diagnostic value in these *P. ovale* infections is the rheumatic pain in various parts of the body, especially in the lumbar region. One case had actually been diagnosed as rheumatic lumbago.

Report on Four Cases

Apart from these phenomena, malaria due to *Plasmodium ovale* is a particularly mild disease and is very amenable to quinine or atebirin treatment. The following is a short summary of the cases.

Case I

A woman from Uganda had had mild attacks of malaria there in spite of regular prophylactic doses of quinine. An attack of fever on October 22, 1933, had subsided without treatment. She had complained of pain in the small of the back and over the appendix region, and an operation was performed on October 29 for appendicitis. A rigor followed on the evening of October 31, with a temperature of 103° F. When seen on the morning of November 1 the temperature was normal and the spleen was just palpable. A blood film showed half-grown and gametocyte forms of *P. ovale*; 5 c.cm. of the blood was sent to Colonel S. P. James at Horton, where the parasite was recovered and was used for thera-