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Journal of South Indian Medicine

vol-3

NO-845

August - 15 - 1936
September - 15 - 1936

DIGITIZED

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Lm121, 11251
N362.35
171809

SOME ELEMENTS OF NEUROLOGY (8)

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POLYNEURITIS

Etiology and Pathogenesis :

Point of entry of noxious agent :

1. The nerve elements are protected against invasion by noxious agents and against deprivation by the myelin sheaths in the greater part of their extent.

2. But they are vulnerable to noxious access where the myelin sheaths are absent and particularly—

(1) In the peripheral nerve terminations ;

(2) In the synapses of the highest regions of the Central Nervous System ;

and (3) When axis-cylinders are exposed in a wound.

3. From which point of entrance the deleterious agent seeps by direct axonic transmission and may extend by direct tissue contiguity within the Central Nervous System as in the ascending and descending forms of polyneuritis.

4. When the noxious agent is blood-borne, the result is usually a general polyneuritis, multiple, symmetrical and peripheral.

5. When the advent is purely local, the result is a local polyneuritis, asymmetrical and unilateral.

6. Further, the noxious agent may have a physiological selective capacity for certain nerve elements to the exclusion of others, which explains the peculiar incidence upon special elements in different varieties of polyneuritis.

Disturbance of function is first and most evident at the points of access—the peripheral end-organs and the cerebral synapses.

1. In lead, copper, arsenic and alcohol intoxication—delirium, mania and fits (the polyneuritic psychosis or Korsakoff's syndrome) are associated with the peripheral paralysis.

2. This association of cerebral disturbance with peripheral loss of nerve function may be met with in all forms of polyneuritis with the complete exception of those due to the known exotoxins of Diphtheria, Tetanus and Botulism.

There is a potentiality for the noxious agent which has gained access to the Central Nervous System to spread locally from element to element from its starting point.

1. Thus arises the ascending and descending and spreading types of polyneuritis which bear the name of Landry's Paralysis.

2. Such spread—

- (1) Is unknown in polyneuritis due to exotoxins.
- (2) Is rare in lead and alcoholic polyneuritis.

Structural change does not necessarily ensue.

1. Palatine paralysis in Diphtheria may be transient for a few days.

2. Recovery of function after complete paralysis may be dramatically rapid as in Landry's Paralysis.

Degenerative changes occur throughout the whole extent of the affected neurones when the productive agent is more lethal to the nerve elements and particularly when its action is prolonged.

1. Wallerian degeneration occurs in the axons.

2. Swelling, tigrolysis and degenerative nuclear changes occur in the cell body.

3. In the dendrites there is degeneration which is again of the Wallerian order if these are myelinated.

4. Rarely, this degeneration may entail the death of the whole neurone; hence, a few of the cases of polyneuritis do not recover—in such cases the lesion is a neuronitis.

Inflammatory reaction attends all conditions of polyneuritis excepting those caused by exotoxins and in some of the Landry type.

1. This is shown in the cerebro-spinal fluid by

(1) Protein increase

and (2) Cellular increase—mononuclears or polymorphonuclears

2. Inflammatory exudation of the lymphocytic variety occurs in the connective tissue of the affected peripheral nerves causing the painful varieties of Peripheral Neuritis.

3. Again, the tenderness of the muscles so marked in some forms of neuritis and so completely absent in others, must be due to some inflammatory change in the muscles in the vicinity of normal pain-bearing end organs

Causes of Polyneuritis:

1. Poisons—(1) Metallic—Lead, Arsenic, Bismuth, Mercury, Copper, Zinc.

(2) Organic—Alcohol and its derivatives, etc

(3) Exotoxins—Diphtheria, Tetanus, Botulism.

2. Deprivation and Metabolic disorders—

(1) Beri-Beri.

(2) Diabetes.

(3) Senile degenerative neuritis.

3. Cachectic conditions—Tuberculosis, Cancer, etc.

4. Acute infections—(1) Enteric;

(2) Influenza;

(3) Malaria;

(4) Dysentery.

5. Acute infective, acute febrile and epidemic varieties of polyneuritis frequently characterized by—(1) ophthalmoplegia, (2) bilateral facial palsy, and (3) bulbar palsy, *i.e.*, polyneuritis of the Cranial Nerves.

6. Virus diseases—Rabies.
7. Polyneuritis associated with Haematoporphyrinuria (very rare).

Characteristics of Polyneuritis :

1. Lower motor neurone paralysis (flaccid jerkless paralysis),
 - (1) Usually symmetrical, and
 - (2) Usually affecting the distal portions of the limbs first and most.
2. And in some varieties there may be added subjective and objective disturbances of sensibility of similiar distribution.
3. Occasionally the incidence is upon the sensory elements mainly or entirely.
4. And the affection may be confined to the proprioceptive afferent elements with a resulting syndrome of ataxia with loss of jerks as in the pseudo-tabes of—(1) Alcohol, (2) Lead and (3) Diabetes.
5. In some varieties, the picture is a pure motor paralysis, e.g., Diphtheria.

LEAD NEURITIS

1. The effects of lead are confined almost entirely to motor neurones.
2. Sensory symptoms are slight or absent.

Pathology :

1. There is a local concentration of lead in the muscles.
2. The lead ascends along the motor axons and may finally cause the death of the ventral horn cell.

Forms and Types of Lead Neuritis :

1. The degenerative form :
 - (1) Antebrachial or wrist-drop type ;
 - (2) Upper arm or brachial type ;
 - (3) Peroneal type.
2. The primary atrophic form—Aran-Duchenne type.

I. The Degenerative Form of Lead Neuritis

(1) Antebrachial or wrist-drop type :

1. This is the common type.
2. Paralysis is limited to the extensors of the fingers and wrist supplied by the musculo-spiral nerve.
3. But two muscles, also supplied by this nerve, escape—
 - (1) The *Supinator longus* and
 - (2) The *Extensor ossis metacarpi pollicis* (Extensor pollicis brevis).
4. The characteristic bilateral symmetrical wrist-drop appears about a week after it is first noticed.
5. Wasting is rapid and the back of the forearm becomes flattened, thus rendering the intact supinator longus more prominent.
6. Loss of power always precedes atrophy.
7. Recovery is almost always complete in a few weeks, months or a year or more.
8. Look for confirmatory signs—blue line on gums, anaemia, punctate basophilia, constipation, etc.
9. Lead in urine by chemical analysis.
10. Lead encephalopathy.

(2) Upper arm or brachial type :

Occasionally the deltoid, biceps, brachialis anticus and supinator longus muscles are affected, either alone or in company with the forearm muscles.

(3) Peroneal type :

1. Less often paralysis occurs in the legs, the muscles supplied by the peroneal nerve, namely, the long extensors of the toes and the peronei, being chiefly involved.
2. Like the supinator longus in the arm, the tibialis anticus, although supplied by the peroneal nerve, usually escapes.

**JOURNAL OF
SOUTH INDIAN MEDICINE**



AUGUST 15, 1936

SEPTEMBER 15, 1936

EDITED BY THE SOUTH INDIAN MEDICAL BOARD

3. This type is usually associated with paralysis of the forearm muscles and runs the same course.

*Note :—*In the above degenerative form of lead neuritis the features are those of a traumatic lesion to a nerve :

1. Loss of power precedes and may be more extensive than wasting ;
2. Faradism is lost or diminished while galvanism is retained ;
3. Recovery is usually complete.

II. The Primary Atrophic form—Aran-Duchenne Type.

In this form the paralysis has the characters of progressive muscular atrophy :

- (1) Weakness and wasting come on together.
- (2) Faradism and galvanism are both diminished in proportion to the wasting.
- (3) The paralysis is often permanent.

1. The Aran-Duchenne type occurs especially in the small muscles of the hand.

2. But it is sometimes irregular in its distribution and affects many muscles in all four limbs.

3. It is often associated with the degenerative form, but may occur alone.

4. Wasting comes on slowly and accompanies the loss of power, instead of succeeding it.

5. It is much more intractable than the degenerative form and often persists after muscles showing the degenerative form of paralysis have recovered.

ARSENICAL NEURITIS

Etiology :

1. Peripheral neuritis may be caused by a single large dose of arsenic, or it may result from prolonged therapeutic use of arsenic in (1) Hodgkin's disease, (2) Chorea, and (3) Severe Anaemias

2. Arsenical neuritis is a rare malady and is most unlikely to appear during its therapeutic exhibition.

3. The toxic action of arsenic with alcohol is greater than that of either alone.

Symptoms :

1. Except that the mental condition is usually normal the symptoms are those of alcoholic neuritis.

2. Hyperaesthesia of the skin and tenderness of the muscles are more constant and more severe in the arsenical form.

3. Paralysis and atrophy of the muscles are often more wide-spread and more rapid in their progress.

4. Characteristics of arsenical poisoning are—

- (1) Hyperkeratosis of the soles, and
- (2) Pigmentation of the skin.

5. Optic Atrophy.

In a suspected case,

The diagnosis can be confirmed by the discovery of arsenic in urine, hair and skin.

ALCOHOLIC NEURITIS

1. In former years Alcoholism was perhaps the commonest cause of severe peripheral neuritis.

2. At present it is a rare disease

3. It occurs most often in women, especially in those who take small amounts of alcohol frequently.

4. It has often been the first indication of secret drinking.

5. Spirits are more potent than milder drinks like beer.

Pathology :

1. The changes in the nerves are those of parenchymatous neuritis.

2. They are most intense in the small branches supplying the skin and muscles and they diminish in severity as the larger branches are approached.

3. They are best seen in the terminal branches of (1) the musculo-spiral and (2) anterior tibial nerves.

4. The wasted muscles often show a fibrous myositis :
 - (1) A reduction in the size of their fibres ;
 - (2) An increase of connective tissue.

5. The spinal cord may be healthy but in almost all cases examination by modern methods shows (1) changes in the nerve cells, and (2) degeneration in the tract fibres derived from the posterior roots.

Symptoms :

1. Premonitory symptoms ;
2. Subjective sensory troubles ;
3. Objective sensory loss—anaesthesia of skin with hyperaesthesia of the deeper structures ;
4. Muscular weakness and high-stepping gait ;
5. Wasting and contractures ;
6. Reflex signs ;
7. No sphincter disturbance ;
8. Ocular signs ;
9. Vasomotor and trophic disturbances ;
10. Korsakoff's psychosis.

1. Premonitory symptoms :

1. The onset is insidious.
2. In most cases premonitory symptoms such as (1) numbness and tingling in the extremities or (2) cramps in the muscles of the lower limbs are present for several months before actual weakness occurs.

2. Subjective sensory troubles :

Are a marked feature even in the early stages.

1. Besides numbness and tingling, the patients complain of
 - (1) Feelings of excessive heat or of coldness in the limbs ;
 - (2) Severe aching or cutting pains in the legs.

2. *Pain cramp* in the calf-muscles is a common symptom ; it is often worse at night and may interfere seriously with sleep.

3. Objective sensory loss—anaesthesia of skin with hyperaesthesia of the deeper structures (pathognomonic) :

1. Light touches are not appreciated at all or many are missed ;
2. The temperature sense is defective ;
3. The prick of a pin causes no pain ;
4. But even moderate compression of the muscles may cause the patient to cry out ;
5. The sensory loss—
 - (1) is greatest in the feet and hands, and
 - (2) diminishes towards the knees and elbows ;
6. Muscular tenderness is usually greatest in the calves ;
7. The soles of the feet are also unduly tender ;
8. Hyperalgesia is often well-marked before anaesthesia of the skin appears.

4. Muscular weakness :

To the disability caused by pains and spasm, weakness of the muscles is added in all but the slightest cases.

1. The arms may suffer first.
2. But in most cases muscles involved in progression are—
 - (1) The extensors of the toes,
 - (2) The dorsiflexors of the ankle,
 and (3) The extensors of the fingers and wrists, and double foot-drop and wrist-drop result.
3. High-stepping gait which is common to all forms of peripheral neuritis is an attempt to overcome the foot-drop.
4. In most cases the distal flexor muscles are also affected but to a slighter degree.
5. In some cases, weakness extends to the proximal muscles and even to the muscles of the trunk.

5 Muscular wasting and contractures :

1. The affected muscles become soft and diminish rapidly in bulk.
2. Unless precautions are taken, contractures occur in the flexor muscles and produce deformities of the limbs which add greatly to the difficulties of treatment.

6. Reflex signs :

1. At the onset the knee-jerks are exaggerated, but in most cases by the time the patient comes under observation all the tendon reflexes are absent.

2. The cutaneous reflexes may be unaltered, diminished, or absent.

7. Sphincter control :

Is retained so long as the patient is fully conscious.

8. Facial and ocular signs :

1. Slight bilateral weakness of the face is often present but severe paralysis is rare.

2. Ocular signs which have been observed are—

- (1) Ptosis;
- (2) Nystagmus;
- (3) Weakness of the external ocular muscles;
- (4) Even Argyll-Robertson pupils.

9. Trophic and vasomotor disturbances in the extremities are very common :

1. The hands and feet (i) often perspire freely, and (ii) they may be white and cold, or red and hot.

2. In some cases oedema of the hands or lower extremities is present.

3. In chronic cases :

(1) The skin of the hands and fingers is thin, smooth and shiny,

and (2) The nails are ridged and brittle.

10. Korsakoff's psychosis :

1. Is a psychical defect characteristic of and almost peculiar to alcoholic neuritis.

2. It is characterized by—

- (i) Failure of memory for recent events;
 - (ii) Loss of appreciation of time and place (disorientation);
- and (3) Pseudo-reminiscences of a remarkable character, so much so that the inexperienced may be taken in.

3. In most cases the mental defects are not so gross—there is merely a failure of memory plus withdrawal symptoms—moroseness and irritability.

JOURNAL OF SOUTH INDIAN MEDICINE

AUGUST 1936

THE HONORARY MEDICAL SCHEME**Honorary Medical Officers and Professorial Appointments**

The recommendation of the Committee that Honorary Medical Officers should also be considered for professorial appointments was a very modest suggestion meant to recognize their merit as teachers. It was definitely laid down that these appointments should go by merit, and not merely as perquisites of particular services. As such, the question of appointing an honorary officer to a professorship or lectureship would arise only when men qualified in every way are available. It was really the intention of the Committee that qualified Honorary Medical Officers should not be debarred from these appointments merely because they were honorary medical officers.

The Education Committee presided over by General Megaw recommended that some professors and lecturers should be recruited from an open field after advertisement, no qualified medical man being shut out from applying. The recommendation was approved by the Government. It was in pursuance of this change in the method of recruitment of professors that the Professor of Pathology and Director of the Pathological Institute was recruited after advertisement. Dr. Goyle did not belong to the I. M. S. or the Madras Medical Service. He was appointed to the Chair directly. Having agreed to the principle and after having acted upon it, we fail to understand the difficulty of the Government in coming to a decision on the point in question. The Honorary Medical Officers do not ask for any extension of the scope of the approved recommendation. All that they claim is their specific inclusion in the field of choice.

The evils of a restricted field for choice of teachers and professors are well known. A casual glance at the staff roll of the various hospitals and medical schools and colleges would

convince any unbiassed person of the defects. It is not to the point to argue that several members have the necessary academic qualifications. The contention is that by enlarging the scope for choice, in some cases at least, equally qualified men with better credentials to teach could have been appointed.

There are certain appointments in the various hospitals known as scheduled appointments, a particular place being for European I. M. S. officers, and certain other places for members of the provincial services and so on. We are not now concerned with the wisdom of these assignments. But the claim of the Honorary Officers to be considered for teaching appointments does not interfere with this arrangement. There are chairs which fortunately are not yet boxed up for any particular caste. It is certainly unfair that competent teachers should be kept out of these places for the sin of their not having drawn any pay from the Government.

A consideration which might have influenced the Government would be the possible discontent in the Services. It is generally said that when they were recruited to the Services, these men looked forward to occupying some of these Chairs in the fullness of their careers. There is no necessity to controvert this contention. But it should be obvious to the darkest unbeliever that, since many of those now in service entered it, a number of new teaching appointments and high administrative posts have been created. The hearts of those in service might be chilled when a shadow crosses the glorious vista of known academic appointments. But should they tremble also when an occasional speck appears on the very outskirts of an ever-widening prospect? We hardly think that this consideration has weighed with the Government. For, when they decide to abolish a post, or to alter the status of any appointment, they have not hesitated to act. Appointments which have been considered the perquisites of the I. M. S. have been made over to the provincial service. Similarly, posts which the Provincial Service fondly hoped would remain with them have been made over to the I. M. S. Civil surgeoncies have been converted to the grade of assistant surgeons and posts held by assistant surgeons have as easily been transferred to the

pockets of the civil surgeons. We have not heard any complaints. Nor is it likely. Men in service, especially in the Provincial Service, are more anxious to inherit the Kingdom of Heaven rather than quarrel at such earthly trifles. For, are they not a group of men and women imbued with patriotic enthusiasm who would serve the needs of the large hosts of the penurious sick, rather than consult their own prestige and pockets?

Licentiate Honorary Medical Officers

The last Committee that revised the rules relating to the Honorary Medical Scheme spent considerable time about the nomenclature of the various honorary appointments. It came to the conclusion that it would be unwise to perpetuate the seeming differences in the status of the various grades of medical practitioners appointed to the honorary posts. Men engaged in identical work were classed under identical names. Junior officers employed as clinical assistants or assistant physicians or surgeons were so-called whether they were graduates of Universities or Licentiates of the Schools. But the latest Order of the Government renaming the Licentiates in a separate class is a retrograde step. High-placed officials have often expressed their sympathy with the Licentiates. They have often criticized the anomalous state of Licentiates whereby a Licentiate, however capable, should ever be a sub-assistant surgeon. But whenever an effort is made to do away with this undesirable state in the honorary scheme, we are up against strong forces of reaction. We cannot congratulate the Government on this Order. They have been rather pusillanimous.

Tenure of Honorary Appointments

The recent action of the Government in serving notice on two junior honorary officers to cease connection with their hospital has caused grave misgivings in the minds of honorary officers. There is a rule to the effect that the Government could terminate the tenure of an honorary officer after giving him three months' notice. But it has been generally believed by every one that the rule was meant to be used on the rare occasions when an honorary medical officer was found to be specially unsuitable

by reason of his conduct, character or inefficiency. There is no obligation on the part of the Government to frame charges or otherwise give reasons for their decision to terminate one's services. But this does not also mean that the Government could so act without definite reasons. So far as the two officers are concerned, they have never had any previous intimation that their work was inferior or that their conduct and character were questionable. Every year these officers are reported on confidentially by their chief. It is only fair to them that they should be told whenever serious defects have been noticed. These two officers are not aware of any such reports. We are therefore constrained to remark that the Government have obviously decided in a hurry. We hear various reasons advanced by various people as to the probable views which may be held by the Government concerning this question. But since most of these reasons have no authoritative basis, we do not feel it necessary to discuss them.

Before concluding, we must refer to a letter published in one of the issues of a local daily. Someone wrote a criticism on the action of the Government as regards these honorary assistants. The letter does not strike one as excessively wise. But what is worse, there is a footnote to that letter by the Editor. The Editor has rightly taken the trouble to verify some of the statements in the letter, and gives what may be mistaken by the public as authoritative reasons for the action of the Government. We do not know the source of the Editor's information. If the Surgeon-General or the Government has been the source, it would be an obvious and inexcusable cruelty to the honorary medical officers. We refuse to believe that the Surgeon-General and the Government would give the Editor of a newspaper reasons which they withhold from the concerned officers themselves. It is more probable that the Editor has been let down by some apparently influential officer who could not be complimented on his discretion. We trust that the Surgeon-General or the Government would institute enquiries as to the source of the Editor's information and thus prevent such undesirable indiscretions in future.

JOURNAL OF SOUTH INDIAN MEDICINE

(Incorporating the Bulletin of the South Indian Medical Union).

VOL. III

SEPTEMBER 1936

No. 9

SOME ELEMENTS OF NEUROLOGY (9)

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APHASIA

1. Is "loss of memory for the signs of thought."
2. Absence of speech from cortical lesions—
 - (1) Hemiplegia :
 - (2) General Paralysis of the Insane.
3. In some cases patient's speech and power of writing are so much deranged that he cannot communicate his ideas to you.
4. In others you are unable to communicate with patient because he cannot recognize words spoken to or written for him.
5. Two mechanisms for speech and writing—**MOTOR** :
 - (1) Motor apparatus of speech and writing ;
 - (2) Initiating centres in cerebral cortex which have been gradually educated for the function of speaking and writing.
6. Two mechanisms for recognition of spoken or written language—

SENSORY :

- (1) Sensory tracts of vision and hearing ;
- (2) Certain receptive centres in cerebral cortex educated for the art of recognising and naming words heard and things and words seen.

7. Left cerebral cortex governs speech and writing in right-handed persons.

Four Types of Aphasia—Broca's Theory :

1. *Motor aphasia* : Lesion of motor speech centre : posterior part of inferior frontal gyrus (near lips and tongue in the Rolandic area).
2. *Agraphia* : Lesion of motor writing centre : posterior part of middle frontal gyrus (near hand in the Rolandic area.)
3. *Sensory aphasia or word-deafness* : Lesion of sensory speech centre : superior temporal gyrus.
4. *Visual aphasia or word-blindness* : Lesion of sensory writing centre : angular gyrus surrounding extremity of superior temporal sulcus in parietal lobe.

The above is an anatomical classification. HEAD has however more successfully classified Aphasia from the point of view of functional defects.

Test for Sensory Aphasia :

1. Make sure patient is not deaf.
2. Rough test : Ask patient to put out tongue, shut eyes, etc.
3. Delicate test : More complicated commands.
4. If done perfectly—no sensory aphasia.

Test for Motor Aphasia :

1. After sensory aphasia test motor aphasia because if patient does not understand meaning of words test for motor aphasia will fail.
2. Rough test : Show patient common objects and ask him to state what they are.
3. Delicate test : Hold conversation with him and note any words used wrongly.
4. If done perfectly—no motor aphasia.

Test for Visual Aphasia :

1. As for sensory aphasia.
2. But write down commands—put out your tongue, etc.

Test for Agraphia :

1. As for motor aphasia.
2. But write down answers.
3. Rough test : Get him to write his name, then common objects.
4. Delicate test : Hold conversation with him in writing or get him to write down what he has done during the day.

Marie's Theory of Speech Function :

I. Sensory ; II. Motor.

I. Sensory

Three great sensory incoming paths proceed into seat of intelligence—

1. Visual sensations.
2. Auditory sensations.
3. Touch and kinaesthetic (muscle sense) sensation.

(i) Visual Sensations.

1. Sight passes back *via* optic tracts and optic radiations to occipital cortex—visual centre.

2. Here objects are seen but not understood, *e. g.*, a strawberry is seen as an object in occipital cortex but it is not understood there that it is meant to be eaten.

3. Writing is only a special form of object that is seen.

4. Similarly, writing is seen in occipital cortex merely as a collection of curved and straight lines, *i. e.*, it is not understood and carries no meaning.

5. From occipital cortex, sight impressions are passed forward to seat of intelligence.

6. There the objects seen are understood after comparison with stored-up impressions, *i. e.*, memory.

7. Passing to seat of intelligence are—

- (1) Sight impressions and
- (2) Special writing impressions.

8. These fibres actually pass deep to cortex, because cortex is composed of nerve cells.

9. And they pass forward just underneath angular gyrus—*i. e.*, Broca's visual word centre.

Visual Agnosia :

1. A lesion of all these fibres results in visual agnosia.
2. Objects can be seen but are not understood, *e.g.*, the strawberry.

Visual Aphasia :

1. A lesion of fibres carrying writing results in visual aphasia.
2. Writing is seen but not understood.
3. Visual aphasia or word blindness is simply a special variety of visual agnosia.

(ii) Auditory Sensations :

1. Come in in exactly the same way as sight except that the route is different.
2. From the ear they pass up to auditory centre situated deep in brain underneath superior temporal gyrus, corresponding to occipital cortex in the case of sight.
3. Sounds are heard at this level but are not understood (of visual sensations, auditory ones are exactly comparable), *e.g.*, a bell is heard in this centre but carries no message of breakfast.
4. Words are only a special form of sound that is heard.
5. So in the same way words are heard at this level but merely as sounds—they carry no meaning, *e.g.*, the patient would turn round, if his back was towards you, because he hears the sound of your voice but it might be Chinese to him.
6. From auditory centre sound impressions are passed upwards to seat of intelligence.
8. Passing to seat of intelligence are—
 - (1) Sound impressions,
 - (2) Special speech impressions.
9. As in the case of the visual fibres they pass up and lie *underneath* the cortex in the position of Broca's auditory word centre.

Auditory Agnosia :

1. A lesion of all these fibres results in auditory agnosia.
2. Sounds are heard but not understood, *e.g.*, the bell. *Cf.* Strawberry in case of *sight*.

Sensory Aphasia :

1. A lesion only of fibres carrying words results in sensory aphasia.
2. Words are heard but not understood.
3. Sensory aphasia or word deafness is simply a special variety of auditory agnosia.

(iii) Touch and Kinaesthetic Sensations :

1. Pass in in exactly the same way as sight and hearing.
2. But in this case they pass to posterior Rolandic gyrus.
3. Here objects are *felt* but not understood, *e.g.*, with eyes shut one could feel a hair-brush but not understand that it was for brushing the hair.
4. From post-Rolandic gyrus a third great group of fibres pass up to seat of intelligence.
5. These objects felt are understood after comparison with stored-up impressions, *i.e.*, memory.
6. These fibres conveying touch impressions to seat of intelligence as in the case of sight and hearing pass *deep* to cortex.

Astereognosis :

1. A lesion of these fibres results in astereognosis.
2. Objects can be felt by the person but are not understood, *e.g.*, the hair brush—it is exactly comparable therefore to visual and auditory agnosia.
3. There is no special variety of astereognosis in the way that
 - (1) Visual aphasia or word-blindness is a special variety of visual agnosia, or
 - (2) Sensory aphasia or word-deafness is a special variety of auditory agnosia.

II. Motor.

1. Emerging from anterior end of seat of intelligence are fibres which pass forwards deep to cortex to enter pre-Rolandic gyrus *i.e.*, motor cortex.

2. It is through these fibres the seat of intelligence directs the motor cortex to perform the complicated movements which compose a motor action, *e.g.*, lighting a cigarette requires complicated contractions of fingers, arm, lip muscles, etc.

3. Speech is after all only a very special kind of movement.

4. The special fibres dealing with speech pass to lower end of motor cortex because this is the portion which controls muscles of head and therefore larynx, etc., which take part in speech.

5. Writing again is only a very special kind of movement.

6. The special fibres dealing with writing naturally pass to that portion of the motor cortex which deals with the movements of the hands and fingers.

7. It will be clear therefore that while the motor cortex by itself is quite able to originate contractions in certain muscles, *e.g.*, an epileptic fit, those contractions will have no purpose at all unless they are directed from the seat of intelligence.

8. Because it is the seat of the intelligence which arranges the extraordinary complex co-ordinated movements of which even the simplest motor action is composed, *e.g.*, blowing out a match.

Apraxia :

1. A lesion of all these fibres results in apraxia.

2. Apraxia is the condition where movements can be performed, *i.e.*, the person is not paralysed, but these movements have no purpose or meaning, *e.g.*, a person may be handed a looking-glass but he would not realize that it was for looking at himself and perhaps he might start trying to brush his clothes with it.

Motor Aphasia :

1. A lesion involving only the special fibres carrying speech results in motor aphasia.

2. In motor aphasia noises can be made but speech which consists of complicated co-ordinated movements of larynx, etc., is impossible.

3. Furthermore, it will be clear that motor aphasia is simply a special variety of apraxia.

Agraphia :

1. In the same way a lesion involving only the special fibres carrying writing results in agraphia.

2. In agraphia the fingers are not paralysed but the complicated movements of writing are impossible.

3. Like motor aphasia, agraphia is simply a special variety of apraxia.

i. These motor fibres, especially those dealing with speech and writing, which run deep to the cortex, pass very close to the internal capsule.

ii. And in lesions in internal capsule they are liable to be damaged,

iii. Causing—

(1) Motor aphasia or

(2) Motor aphasia and agraphia or even

(3) Motor aphasia and agraphia and apraxia.

In damage to the seat of the intelligence, *e.g.*, general paralysis of the insane which damages the cerebral cortex, all the faculties are disturbed :

(a) There is some *visual agnosia* including word blindness,

(b) Some *auditory agnosia* including word-deafness,

(c) Some *astereognosis*, and

(d) Some *apraxia* including—

(1) *Motor aphasia* and

(2) *Agraphia*.

1. It must be remembered that in *right*-handed people the seat of the intelligence which—

(1) Receives visual, auditory and other sensory impressions and sums them up,

(2) And on the motor side directs movements—
is found only on the *left* side of the brain.

2. Since that is so you might wonder what the right cerebral cortex is used for.

3. The right cerebral cortex is used simply as a storehouse for previous impressions, *i.e.*, memory which assists the left cortex, *i.e.*, the seat of the intelligence—

(1) in coming to its conclusions with regard to the various sensory impressions coming in and

(2) in advising with regard to the movements which it initiates.

4. The *left* cortex therefore in *right*-handed people directs not only movements but also that very special movement "speech".

5. Hence only in lesions of *left* side of brain in *right*-handed people do you find—

(1) Aphasia,

(2) Apraxia,

(3) Agnosia, etc.

6. In *left*-handed people it is just the reverse in them—

(1) *Right* cortex directs and

(2) Aphasia, etc. results from lesions of *right* side of brain only.

Note: In *right*-handed persons, the *left* cerebral cortex "leads".

Right-sided Apraxia:

1. As left seat of intelligence directs *both* sides of body it must send fibres to *both* motor cortices.

2. Fibres to left motor cortex, *i.e.*, those which eventually go to right limbs because pyramidal tracts cross lower down, pass straight out from seat of intelligence and quickly reach left motor cortex.

3 They will obviously have quite a short course.

4. A lesion of these fibres from seat of intelligence to left motor cortex results in *right*-sided apraxia.

5. Do not get confused over "left" and "right".

6. *Left* motor cortex through its pyramidal tract deals with *right* side of body.

7. Therefore, a lesion of fibres passing from left seat of intelligence to *left* motor cortex produces *right* sided apraxia.

8. On the other hand we have seen that left seat of intelligence governs *both* sides of body in a *right* handed person.

In *right*-sided apraxia—

(1) Right side of body is not paralysed;

(2) But is incapable of performing familiar purposive movements correctly.

Illustrations:

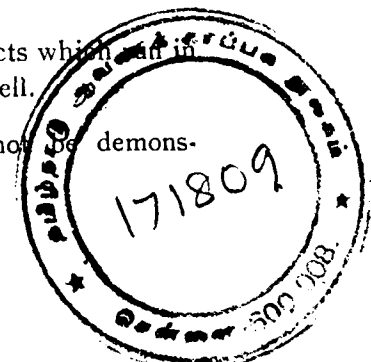
When asked to brush examiner's coat patient took lower corner of coat correctly with left hand but with right hand he picked up brush and made a rhythmical series of movements in air above his right ear; at the telephone he put receiver to ear correctly with left hand but with right hand took mouth-piece and put it to his forehead making puffing and nodding movements all the while.

1. Pure *right*-sided apraxia *i.e.*, without left side affected as well, is rarer than would at first sight appear.

2. Because the common lesion to damage these fibres is a lesion in the neighbourhood of the internal capsule on the left side.

3. And this nearly always affects the pyramidal tracts which pass in the internal capsule, with resultant paralysis of the limb as well.

4. So that the apraxia which is actually present cannot be demonstrated as it is masked by the paralysis.



5. A lesion which will cause right-sided apraxia must affect the fibres passing out from the seat of intelligence only and leave the pyramidal tracts intact.

6. Such a lesion is rare.

Left-sided Apraxia :

1. Fibres from the seat of intelligence to right motor cortex must pass across from left to right.

2. Actually they cross the middle line in the anterior portion of the corpus callosum.

3. A pure lesion of these fibres results in *left* sided apraxia.

4. Because the fibres are passing to the right motor cortex which gives rise to the pyramidal tracts which lower down cross to the left side of body.

5. A pure left-sided apraxia is very rare.

6. It has, however, been met with in rare cases of tumour involving the anterior end of the corpus callosum.

Bilateral Apraxia :

1. Is by far the commonest kind of apraxia.

2. Due to a lesion of the seat of intelligence

3. Best example is a general paralysis of the insane before the patient finally becomes absolutely paralysed.

4. In such cases the cerebral cortex is gradually destroyed.

5. Once the motor cortex, however, is destroyed complete paralysis will result.

6. Then the underlying apraxia cannot be demonstrated.

CULTURAL MEDICINE *

OLD TRAILS

I

[We are reproducing in this and subsequent numbers of the JOURNAL the series of articles on the History of Medicine which are appearing in MEDICAL TIMES under the caption Cultural Medicine. We are sure these articles will be appreciated by our readers.]

A MOVING PICTURE OF THE CENTURIES.

Let us fancy ourselves super-Lindbergs, flying down the centuries and enjoying a panoramic view of all the epochs in the story of medicine.

It will be recalled that the "Lone Eagle," in his flight to Paris, passed through one night of darkness. Similarly, we shall fly through the so-called Dark Ages—that period extending from the fall of the Roman Empire in the fifth century to the opening of the eleventh century—during which mankind was storing energy for the burst of creative glory that marked the Renaissance.

What we should see in such a flight would unfold itself in some such orderly manner as we show now—paying attention only to worth while general trends or facts of particular significance :

Primitive Medicine : Era of magic and demonology.

Grecian Foundations and Graeco-Roman Era, 460 B. C.—A. D. 130 : Disease studied objectively ; passing of priestcraft ; natural law and common sense invoked ; practical bedside methods ; anatomical, surgical and pharmaceutical beginnings ; public health taken into some account ; university founded at Alexandria ; first textbook on medicine (Celsus).

Second Century : Experimentation and revival of Grecian methods ; anatomy advanced.

The Middle Ages, A. D. 476—A. D. 1492 : Hospitals initiated by Christianity ; Arabian medicine contributes to pharmacy, hospital building, and the classification of diseases ; rise of the medieval universities.

Sixteenth Century : Discovery of the general circulation of the blood by Cesalpinus ; modern anatomy ; advancement of chemistry ; surgery, midwifery, pharmacy and eye affections enlist much effort ; beginning of modern medicine definitely foreshadowed.

Seventeenth Century : Surgery in the modern sense becomes possible ; chemistry definitely separated from alchemy ; physiology established as a science (Harvey) ; bedside teaching introduced ; microscope perfected ; embryology begun.

Eighteenth Century : Microscopic investigations ; physical diagnosis advanced (percussion) ; bedside medicine developed ; diseased organs studied ; surgery, physiology and pathology advanced.

Nineteenth Century : Vaccination ; antiseptic surgery ; ether anaesthesia ; bacteriology ; the cell doctrine ; physical diagnosis advanced (the stethoscope) ; diseased tissues studied intensively.

* Medical Times, Vol. 67, July 1936, p. 252.

Twentieth Century: Completion of the linking of the other sciences with medicine; preventive (preclinical) medicine, sanitation and hygiene; the modern hospital system; public health administration and civic medicine; the conquest of the infectious diseases; biochemistry; pathologic physiology; laboratory medicine; prenatal care; reduction of infant and maternal mortality; twentieth-century surgery, including operating room diagnosis and certain applications of military technic to civil practice; perfection of local and general anesthesia and of asepsis; the new science of nutrition; internal medicine triumphant: insulin, new heart facts, etc.; trained nursing; physical therapy; psychotherapy; specialization; medical social service; vital statistics; intensive and comprehensive undergraduate instruction and continuous professional education; the search for, and elimination of, focal infections; public dissemination of medical knowledge; internationalization of medical activities; a strong medical press; great research foundations; food and drug control; great advances in tropical medicine; venereal disease prevention and control; lengthening span of life; medicine a co-operative social undertaking; leadership in the modern civilized state provided by medicine; the medical scientist himself, whose use by modern society determines the degree to which it can thrive.

THE BEGINNINGS.

Cumston saw four divisions in the evolution of medicine; these he classified as Instinctive, Theological, Metaphysical and Scientific.

The age of primitive medicine was an era of magic and demonology ushered in by Instinctive factors. As Osler put it, early medicine was rooted in the instinct of self preservation, in the longing to relieve afflicted loved ones, and, above all, in the softening effects upon the hard race of man of the maternal passion.

Superstition and folklore (folk-medicine) were deep roots of the early art of medicine. Spirits, angels, gods, devils and witches determined the issues of health, disease and death in the infancy of the race. The natural was supernatural and sorcery was a real force in the world. Disease was something apart from the body, an entity that had entered it at the behest of some god or spirit. Hence recourse was had to prayer, ritual, incantations, charms, the dance, and the use of herbs to exorcise or placate illness.

Diagnosis was through the gods, and so comes in our Theological Division. Isolation of the infected represented not merely abandonment, but also an attempt to conceal the afflicted from the demons who were torturing them.

The cure of disease was, of course, in the hands of priests and magicians, supernaturally experienced and learned.

The remedies and methods that came to be used by such physicians were employed for the same reasons that incantations, for example, might be invoked. But empirically, that is to say, through experience, such remedies and methods often, in time, proved their actual worth. In this way baths, the cleansing of wounds, sweating, bleeding (the origin of which, according to Pliny, is to be found in the example set by the bloodletting hippopotamus), fumigation, cauterization, enemata (Osler, in his *Evolution of Medicine*, cites the elephant's habit of administering enemata to himself with his trunk), inunctions, douches, plasters, poultices, cathartics and emetics all in time passed through a rationalizing process. The beating of patients to drive out demons causing insanity was the fore-runner of some of the older methods of physical therapy. The infliction of amputations as punishment for crime aided in the development of a rude kind of surgery. The use of red light by primitive men for curing certain ailments finds an interesting modern echo in the prevention of smallpox pitting through Finsen's red-light treatment. A great physician (Littre) has said that "there is nothing in the most advanced contemporary medicine whose embryo cannot be found in the medicine of the past."

Priestly medicine—the Theological Division—crystallized in ancient Egypt, yet there civilization, six thousand years ago, marked a step or two out of a purely mystical and magical age into one showing some formulation of rational medical principles. And it is just here that we encounter our first medical pioneer—Imhotep, the first physician to stand out clearly from the mists of antiquity and destined to be worshipped at Memphis as a god, just as in later times Aesculapius was deified by the Greeks.

There was a higher order of Egyptian priests whose functions were decidedly mystical, and a lower order who were actual practitioners, acting as anatomists (dissection was a sacrilege but embalming processes disclosed much), pharmacists, surgeons and pathologists, and treating diseases of the eye and female pelvis. Herodotus says that in Egypt there was a physician for every part of the body; in other words, our present-day over-specialization is merely history repeating itself. These Egyptians were clever dentists, rather sensible hygienists, students of dietetics, physical therapists, epidemiologists (employing fumigation), fairly good surgeons (performing amputations and cutting for stone in the bladder, etc.), and artificers of surgical instruments. They were familiar with the use of opium and squill and it is supposed that the Arabians, later to distinguish themselves as pharmacutists, owed much to the Egyptian pioneers. Intermediary between the higher and the lower orders of priest-physicians were the veterinarians and practitioners of military medicine.

What little that was rational in the medical practice of the Assyrians and Babylonians was derived from the Egyptians. The same thing is true of the ancient Jews, who were pathfinders and creators in the realm of public hygiene.

Early Hindu medicine had reached a high development in the realm of surgery by the fifth century before Christ. The Hindu surgeons were especially adept at rebuilding mutilated noses by flap operations, suturing injured intestines, and dividing nerves for neuralgia. They cut for stone, performed cesarean section, operated upon hernias, removed cataracts, did skin-grafting, excised tumors, amputated limbs, treated fractures skilfully, and checked haemorrhage by cauterization, boiling oil or pressure. Inoculation against smallpox was practiced, and auscultation was employed in diagnosis. To the Hindus we owe the introduction of the drugs cannabis indica (hashish) and hyoscyamus (henbane). Their materia medica was quite extensive and they cured the bites of venomous serpents with remedies whose composition has been lost. The Rig-Veda (oldest of the sacred books—2000 B. C.) discusses tuberculosis and leprosy and mentions physicians as a special class.

"We see, therefore," says Seelig, "that primitive medicine, always to be regarded in a very definite sense as the fore-runner of modern medical science, develops from rather formless and inchoate ideas, based largely on superstition and emotional religious impulses. Gradually empiricism forced its way into the primitive mind to the degree that cause and effect began to be realized; and in so far as this realization dawned, just in so far did rationalization infiltrate into medical thought. A definite transition cannot be traced from primitive medicine to later rational medicine, but that a gaping hiatus does not exist between the tanglewood of the earliest eras and the clearing made during the days of classic Greece, is evidenced by the development of medicine in Egypt and the influence of this development on Assyrian, Babylonian and Persian medicine and on the medicine of the Jews."

THE REAL FOUNDATION.

It was the Greeks who gave us the greatest genius of ancient medicine—Hippocrates.

Aesculapius, who lived before the Trojan War (1200 B.C.), and whose sons served as surgeons in the army during that conflict, was a great physician whose cures were so remarkable

that he was deified, and whose death was due to the jealous vengeance of Zeus. He became the god of medicine and many temples were erected in his honour. These temples, conducted by the Aesculapian priesthood, were sanatoria in which hygiene, empirical practice and religious psychotherapy were applied. Votive tablets, the gifts of grateful patients, recorded descriptions of their diseases and their treatment, and these were the first clinical records, of which Hippocrates, founder of the first scientific system of diagnosis and healing, made good use.

Hippocrates was born about 460 B.C. Being the son of a priest of the Aesculapian temple at Cos, he inherited his profession and its priestly knowledge. But he discarded the old theories and formulated no principles that were not based upon observed facts. The old theological system was static, but Hippocrates, an intellectual product of the Periclean age, scrapped priestly bonds with medicine, and initiated dynamic investigation. He wrote much, and the record of his knowledge, gained at the bedside, is a marvel to this day.

The Father of Medicine, as Hippocrates is called, despite his scant knowledge of anatomy succeeded well in the reduction of fractures and dislocations, trephined the skull, and tapped the abdomen; he used a number of powerful drugs skilfully (e.g., hellebore and veratrum album); he knew how to control epidemics and drove the plague from Athens; his doctrine of humours as the cause of disease persisted through all the centuries after him; the healing of ailments by crisis, the conservative (expectant) treatment of disease, the curing of like by unlike, bleeding, low diet and purgatives in acute illness, elimination by way of the kidneys and lungs, sound hygienic rules, and the doctrine of the healing power of nature were all Hippocratic measures and beliefs that are influencing medical practice to this day because of much the same justifications that Hippocrates himself reasoned out.

Careful, exhaustive observations, and the formulation of principles and treatment only upon such facts as were thereby adduced, were the contribution of Hippocrates to medicine, and they still guide us.

But the remarkable structure so carefully erected by Hippocrates was all but ruined in Greece itself, after his passing, by a school of Dogmatists who speculated and theorized and dogmatized in a manner, quite inimical to the Hippocratic method. Fortunately, Alexander the Great founded Alexandria in Egypt and, influenced by the interest of his teacher Aristotle in medicine, the best of Greek medicine was inoculated there and grew mightily under two more early heroes of medical science—Herophilus (dissector of more than two hundred human bodies) and Erasistratus (discoverer of the tricuspid valve in the heart), clever clinicians and versatile investigators.

The great Alexandrian library was founded, autopsies and dissections were practised, and physiology was foreshadowed. The relation of the brain to the rest of the nervous system, a distinction between veins and arteries, some understanding of the genital organs, and many other data were fairly well worked out. So here the old Hippocratic methods continued to function successfully until the second century after Christ, succumbing then, for a time, to the result of the disintegrating influence of two new schools of medicine—the Empiricists, who rejected theory utterly, and the Methodists, narrow sectarians who attributed all disease either to contraction or relaxation of the pores!

But the golden chain of medical science that has never really ceased to run continuously down the centuries was kept intact by Celsus, a Roman, who, in the first century after Christ, crystallized all worth while medical knowledge known to the world in a celebrated treatise or text-book which furnished an anchorage for harassed thinkers.

Even the work of Celsus did not prevent further dissent from orthodoxy, and until the appearance of Galen, greatest medical hero after Hippocrates, there was much chaos and a partial eclipse of Greek foundations.

THE GRAECO-ROMAN PHASE.

(Galen)

Rome seems never to have had any medical ideas of her own. The conqueror of Greece, she imported Hellenic thought. We have paid tribute to Celsus, but he was not an original thinker. It was Galen, a Greek, and physician to Marcus Aurelius, through whom Rome enjoyed a renaissance of Hippocratic medicine that was to influence the world for centuries.

Galen was born about A.D. 130 and arrived in Rome at the age of thirty-four. He was highly educated and in medicine was a product of the Alexandrian school. He followed the principles and methods of Hippocrates but enormously modified and amplified them. Galen's vast system, necessarily faulty, was in large part slavishly accepted for fifteen hundred years, to the exclusion of all else except certain Arabian contributions to medicine and some advances in anatomy.

Galen's accomplishments and achievements were stupendous for the time. He experimented diligently in every possible direction. His anatomical descriptions of the brain, bones and muscles are especially excellent, but he failed to solve the riddle of the circulation. He elucidated inflammation, distinguished pneumonia, pleurisy and tuberculosis, established high grade, surgical principles and practices, and made great advances in the matter of drugs. He wrote over seven hundred books. Intellectually, he was hardly surpassed by Aristotle. As physician to the gladiators, much opportunity was afforded him for the study of traumatic lesions. A great genius, marvellously learned and endowed with supernormal intellectual vigour, he attained an unquestioned authority which ruled forcefully the minds both of his contemporaries and of a long scientific posterity. Again the golden chain of medical science is linked along the ages, to enable the restored medicine of Hippocrates and the new knowledge of Galen to withstand the assaults of superstition and ignorance throughout the Dark Ages.

AFTER GALEN.

(The Middle Ages)

When Rome fell (A.D. 476) and Constantinople (Byzantium) became the capital of what was left of the Roman system, Greek culture and speech there supplanted the Latin heritage. Great scholars preserved the old texts. The most noted of these were Oribasius, Aetius, Alexander of Tralles and Paul of Aegina. Then when the Arabs, dynamized by Mohammed, came into military conflict with Constantinople (sixth and seventh centuries), they absorbed its Greek science, including medicine. The Arabs also made contact in the sixth century, in Syria, Mesopotamia and Persia, with scholarly Greeks (Nestorians) who had been driven out of the Eastern Empire because of religious persecutions. The Arabs were not barbarians, like the Northern hordes which had descended upon Rome, and in the great schools which they established the Hippocratic and post-Hippocratic principles found a place again. Later, all this old knowledge and vast amounts of new (Arabian) knowledge seeped into Europe in the wake of trade and of war (the Moorish conquest of Spain). Thus the Arabs aided greatly in keeping our golden chain intact.

"These so-called Dark Ages," says, Seelig, "were merely fallow years during which the human mind became fertile soil for the growth of the new learning that was to replace the long period of sterility."

The Christian Church was also a great medium for the custody, copying and transmission of the old learning in Europe. Its monastic schools were the forerunners of the medieval universities whose rise meant everything for medicine. Benedictine monks were particularly active in the propaganda for medicine. And then the establishment of many hospitals by the Church laid great foundations for subsequent progress.

But it was the Arabs who supplanted the Greeks in intellectual eminence. They founded great schools at Baghdad in the East and at Cordova in the West. Their medical supremacy lasted from the eighth to the twelfth century, when they were overthrown by the Turks in the East and driven from Spain in the West.

The Arabs developed some notable physicians. Rhazes gave the first authentic descriptions of small-pox and measles; Avicenna, the "Prince of Physicians," wrote the famous *Canon*, which summarized all medical knowledge; Avenzoar, the most original writer and observer of the Arabian group of famous physicians, discoursed like a modern upon cardiac, chest, throat and ear diseases; Albucasis was noted as a surgeon and as a writer on obstetrics; and, lastly, Maimonides, a great Jewish authority on poisons and personal hygiene, acted as court physician to Saladin himself.

Many great hospitals and medical colleges were founded by the Arabs, and extraordinary advances were made by them in the domain of drugs.

During the Moorish occupancy of Spain the Arabic medical texts were translated, with the help of Jewish scholars, into Latin. This gave to the whole world of European scholars the great Graeco-Arabian system of medicine—a fact, obviously, of tremendous importance.

The Jewish scholars and physicians who flitted about the world of the Middle Ages, distinguished for learning and skill and frequently acting as royal physicians in countries where, ironically enough, no Jew was permitted to study in the schools, played a great part in bringing about the intellectual renaissance of medicine in the Middle Ages.

The rise of the universities in Europe was made possible by the influence of the Arabs in Spain, the pouring of their Greek culture into Italy accounting for the vigour of the School of Salerno—given life by the Benedictines but imbued with the Hellenistic spirit by the Moors. This school was founded in the ninth century. So inspiring was its influence that by the fifteenth century, Italy boasted sixteen universities, or as many as all the rest of Europe. Many great medical schools followed in the wake of Salerno—Bologna, Messina, Pavia, Prague, Vienna, and Heidelberg, in the order named, stretching from the twelfth to the fourteenth century.

The medical authorities in these universities of the Middle Ages were Hippocrates, Galen, Avicenna and Rhazes. Beyond these there was but little progress for a time, despite a fine academic spirit.

But it was the work of a group about whom we shall now write briefly that gave the greatest impetus to progress. Roger Bacon, the Franciscan (1210-1292), was a realist who insisted upon observation, experiment, and freedom of thought. Arnold of Villanova (1235-1312), an indefatigable experimenter and rationalizer, refused to be bound by what he considered obsolete in the old medical heritage, while preserving a wholesome respect for whatever was sound in the original sources. Henri de Mondeville (1260-1320) taught anatomy as well as it then could be taught without human bodies and was insistent upon cleanliness as the first principle of surgery. Guy de Chauliac (1300-1368) first took holy orders and then studied medicine and surgery at the leading schools, becoming in the course of his great career an operator whose writings are strangely modern and informed. He was deservedly the greatest authority in surgery during the fourteenth and fifteenth centuries. Lanfranchi, who died in 1315, was, however, the father of French surgery and presumably a source from whom Guy de Chauliac derived much of his inspiration. Finally, John of Arderne (1306-1390 [?]) founded English surgery as the result of his experience in the Hundred Years War. Until he lived fistula-in-ano had been regarded as an incurable disease. The principle underlying his operation for this condition underlies the modern operation. This, if anything, was a greater achievement in his day than the Marion Sims operation for vesico-vaginal fistula in our own times.

These men possess an especial significance in that they definitely foreshadowed the revolution that another group was to initiate in the sixteenth century. Seelig characterizes them as actors in a pre-renaissance drama. They spoke the prologue before the rising of the curtain upon a new and more glorious scene. They were the final links, as the Middle Ages drew to a close, in the golden chain that led on unerringly to the triumphs that were to eventuate in what we know as modern medicine.



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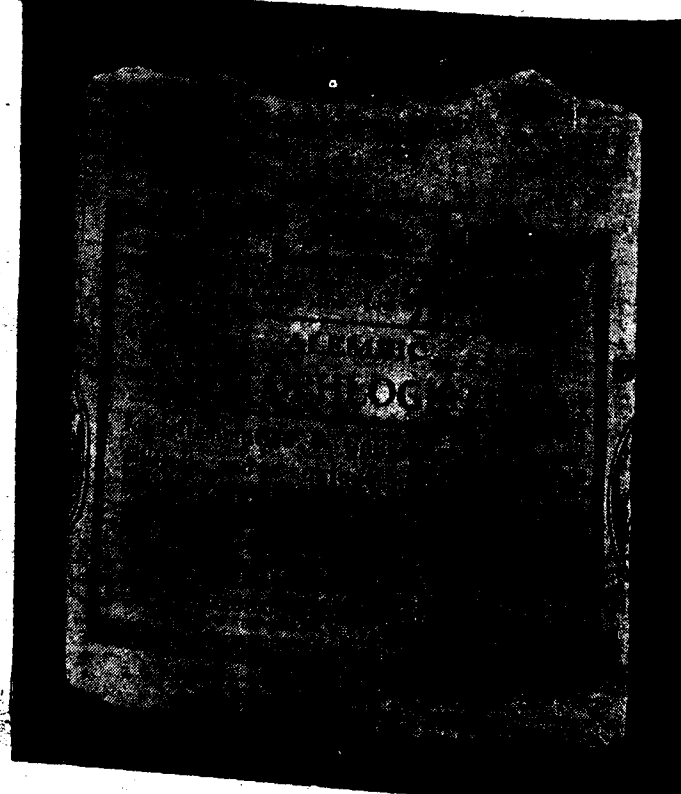
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ASSOCIATION NOTES

**TINNEVELLY DISTRICT MEDICAL ASSOCIATION,
 PALAMCOTTAH**

(Affiliated to the Indian Medical Association).

The Tinnevelly District Medical Association held its monthly meeting in the splendid palace of Ramnad on Saturday the 25th July 1936 at Courtallam one of the most charming water-falls of Southern India, noted for pretty mountain scenery. Members numbering 52, including two lady doctors, gathered from all parts of the District. All the members had an early bath in the water falls which were in full swing. There were fine drizzlings and the members enjoyed the season well.

After light refreshments the meeting began under the Presidentship of Lieut.-Col. T. S. Shastry, I. M. S., at 11 A. M. The Secretary Dr. K. Rama Ayyar, M.B.B.S., read the minutes of the monthly meeting held at Papanasam on 27th June 1936 which were passed.

The following clinical cases were demonstrated :—

By whom.	Cases.
1. Dr. G. Parathasarathy, M.B. B.S., Tenkasi.	Congenital Heart Disease. (Pulmonary Stenosis.)
2. Dr. A. L. Ananthanarayana Iyer, M.B. B.S., Tenkasi.	1. Mitral Stenosis. 2. Aortic regurgitation with aneurysm of the aorta. 3. Chancre lip, and 4. Myxoedema.

Dr. K. Gopal Rao, L.M. & S., read interesting clinical Notes of the following cases, which were operated on by Lieut.-Col. T. S. Shastry I.M.S., at the Government Headquarters Hospital, Palamcottah :—

1. Lymphosarcoma of axilla.
2. Intussusception—Tumour of Caecum.

Dr. K. Padmanabha Ayyar, L.M.P., of Tenkasi, read an interesting paper on 'Alkalinity of Blood in relation to Health and Disease'. After discussion, Lieut.-Col. T. S. Shastry, I.M.S., summed up the salient and important features of all the cases, and thanked the Estate Collector of Ramnad for his readiness and kindness in placing the spacious and splendidly furnished palace of Ramnad at our disposal. Thanks were also offered to Dr. S. N. Rangachary, and his helpers for organising the most enjoyable function so well.

In the evening, a Health Exhibition was held in the town of Tenkasi.

THE MEDICAL PRACTITIONERS ASSOCIATION, NUZVID

A monthly meeting of the above Association was held at Vissandrapeta on 26th July 1936 at 3 P.M., with Dr. P. Anjaiah Naidu in the chair. After prayer and reading of minutes of the previous meeting by Dr. N. Rama Rau, L.M.P., Secretary, the members as their foremost duty passed the following resolutions which were unanimously carried

1. "This Association expresses its sense of deepest gratitude and fervent thankfulness to the Almighty for having saved the precious life of the Gracious King Edward VIII, from the distastefully attempted outrage and resolves to convey to His Majesty the King-Emperor its most loyal and heartfelt congratulations upon the providential escape."

2. This Association is shocked to learn the death news of Dr. S. Rama Subbu, L.M.S., subsidised Rural Medical Practitioner, Viraganur, Salem District and the Honorary Secretary, the Provincial Rural Medical Practitioners Association and resolves to convey its condolences to the bereaved family and members.

Resolved to elect Dr. D. Satyanarayana Naidu, L.M.P., Sub-Assistant Surgeon, Government Hospital, Nuzvid as the President of the Association in place of Dr. D. V. Moses transferred.

4. Resolved to celebrate the 4th Anniversary of the Association at Nuzvid in August 1936 and that the Anniversary subscription be fixed at Rs. 2 per head.

Dr. P. Anjaiah Naidu reported a case that was diagnosed by him as vesicular mole upon whom a laparotomy was performed in the Nuzvid Mission Hospital taking it to be one of ovarian cyst. He then demonstrated a boy aged 8 years with persistent general anasarca and also ascites that was

DIETETIC TREATMENT OF SPRUE

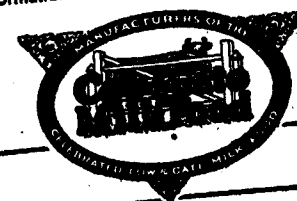


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Thirukkattupally to speak on 'The experiences of a Practitioner in Burma. Dr. Iravatham spoke for half an hour. In his humorous speech he gave a very interesting account of the history of Burma about the people and their customs, and the places of interest in Burma. He mentioned in his speech that there was good scope for young and adventurous doctors, a good field for practice in Burma. Capt. Sangham Lal in his concluding remarks thanked Mr. Bowden for his kind invitation and thanked him for taking such kind interest in the welfare of the Ceylon-emigration. He congratulated Dr. V. Iravatham for his excellent, interesting and humorous speech about Burma.

He also gave some of his experiences during his short stay in Burma during the time of the rebellion.

Then the Secretary proposed a hearty vote of thanks to the host, the Lecturer and the members and the meeting came to a close at about 8 P.M. after a very enjoyable evening.

THE KISTNA DISTRICT RURAL MEDICAL PRACTITIONERS' ASSOCIATION.

An ordinary meeting of the above Association was held on 22-8-36 at Masulipatam in the District Medical Officer's office at 5 P.M. with Lieut. Col. K. V. Ramana Rao, I. M. S., District Medical Officer, in the Chair. Mr. N. Rama Rao, the Secretary read the minutes of the previous meeting held on 19-7-36, which were approved. Then, mentioning the sad death from Tetanus of Dr. S. Rama Subbu, L. M. S. of Viraganur, he gave a brief life-sketch of the deceased practitioner and about the substantial work turned out by him as Secretary of the Provincial Rural Medical Practitioners' Association. He said that every Rural Medical Practitioner owed a life-long and deep debt of gratitude to him. All the members and the president standing, they passed a condolence resolution upon his death to be conveyed to the bereaved family.

In continuation, the members also passed another resolution wherein they have requested Dr. V. Rama Kamath, Editor, *Medical Practitioner* Madras, to select one capable rural medical practitioner to take up the place of late Dr. S. Rama Subbu and also to see that the next Provincial Conference be called for in the coming Christmas.



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coming off and on for a long period resisting all treatments. Two case histories of placenta previa centralis were also given by him. Dr. N. Rama Rau narrated a peculiar case of Quinine idiosyncrasy in a strong and sturdy man of 38 due to only 40 grs. of Quinine Sulph. resulting in insomnia for a long period after the subsidence of the acute dangerous symptoms under his treatment. Another case he mentioned was one of lymph scrotum with enormously cedematous and swollen condition of the penis and scrotum and high temperature ranging between 103° and 105° for a few days and later on the swelling became marked on one side being red and congested and clear fluctuation was elicited, which misled him as one developing into an abscess. This was confirmed by our other consultants also who were brought for opinion, for incision revealed no pus at all except a pouring forth of lymph. Many other professional topics were discussed and after light refreshments offered by Dr. P. Anjaiah the Local Fund medical officer the meeting came to a close by 5 P.M.

THE TRICHINOPOLY DISTRICT MEDICAL ASSOCIATION

Registered

A monthly meeting of the above Association was held at 5 P. M on Saturday the 22nd August, 1936 in the Ceylon Labour Commission Office Race Course, Trichinopoly, when about 45 members were present. Mr. N. H. M. Bowden, Ceylon Emigration Commissioner was 'At Home' to the members. After a sumptuous 'Tea' the Doctors were taken round the Colony by Mr. Bowden and shown the various places of interest such as the resting-ward, the fly-proof kitchen-room, the Sanitary-cooking-room, the dining-hall where about 150 emigrants are fed at a time. The doctors were well impressed with what they saw and appreciated the care taken by the Commissioner to look after the interests of the Emigrants.

Then the gathering assembled in the meeting-hall. In the unavoidable absence of Dr. Norman, the Secretary proposed Capt. Sangham Lal, I. M. S., District Medical Officer to the Chair.

Capt. Sangham Lal requested Mr. Bowden to speak a few words about the working of the Ceylon Labour Commission. Mr. Bowden spoke for half an hour as to how the emigrants were recruited and how they are sent to the Ceylon Emigration. On the occasion Mr. Bowden issued printed account of the working of the Institution with beautiful sketches and distributed to all the members. Then Capt. Sangham Lal called upon Dr. V. Iravatham of

gestation was detected. Finally, Mr. N. Rama Rau demonstrated a case of neuralgia which, though simulating sciatica differed from it in some minute aspects resisting all his treatments. The patient was examined by the President and the members who had a long discussion over the same and finally declared the case not one of Sciatica and many suggestions on the treatment to be adopted were made.

The President in his closing speech congratulated the Secretary and the members of the Association for the Co operation and enthusiasm with which they are running the Association and wished all prosperity to the Association.

The meeting came to a close by 7-30 P.M.

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Finally, there was a long discussion upon the subject of refresher courses proposed by the Surgeon-General to the rural practitioners in which they contested that allowances may be sanctioned to them during such courses and also that they might be given facilities for the courses at the Headquarters Hospitals but also in bigger places like Madras, Bangalore, etc., in case the practitioners are desirous of having special studies. The President said, that he found that some of the rural practitioners are lagging behind in their professional knowledge and it is to such practitioners that these courses are quite essential.

The meeting came to a close by 6 P.M.

THE MEDICAL PRACTITIONERS ASSOCIATION, NUZVID.

Anniversary Celebration.

The 4th Anniversary of the above Association was celebrated on 30th August 1936 in the Government Hospital, Nuzvid, at 4 P.M. when Lt.-Col. K. V. Ramana Rau, I.M.S., D.M.O., Kistna, presided. Many practitioners attended the function including Dr. D. W. Semmens of the local Mission Hospital and the local lady private practitioner. A group photo was taken and refreshments were served after which the meeting commenced at 5 P.M. with prayer by Mr. A. V. Subba Rau, L.I.M. Dr. N. Rama Rau, L.M.P., Secretary read his Annual Report which was adopted. A paper on 'Abortion' was read by Dr. P. Anjaiah, L.M.P. and Dr. Mrs. N. M. C. Seshagiri Rau read her Clinical notes upon a case of Adherent placenta treated by her under Evipan Sodium anaesthesia. Dr. N. Rama Rau read a paper on 'Gonorrhoea, its complications and treatment.' The President thereupon dilating upon the above subjects mentioned two interesting cases he happened to treat. One was a case of a female suspecting herself to be pregnant for the first time, but sent by another Medical officer diagnosed as 'ovarian tumour' but laparotomy revealed a hard intra uterine (fully distending the uterus to the size of a foot ball) tumour with uniformly $1\frac{1}{2}$ " thick walls and a smooth surface. Hysterectomy had to be done. On section the tumour contained dark brown gelatinous fluid with calcareous deposits (Myxomatous degeneration) while the Pathological report confirmed a fibroma. The second one was one of Extra uterine gestation which he could not detect till the last, but was treated as normal gestation at the time of labour at full term. Several manouvers to terminate the labour were of no avail until an escape of purulent discharge came out through an opening near the umbilicus which necessitated a laparotomy when an extra uterine

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