

The Antiseptic

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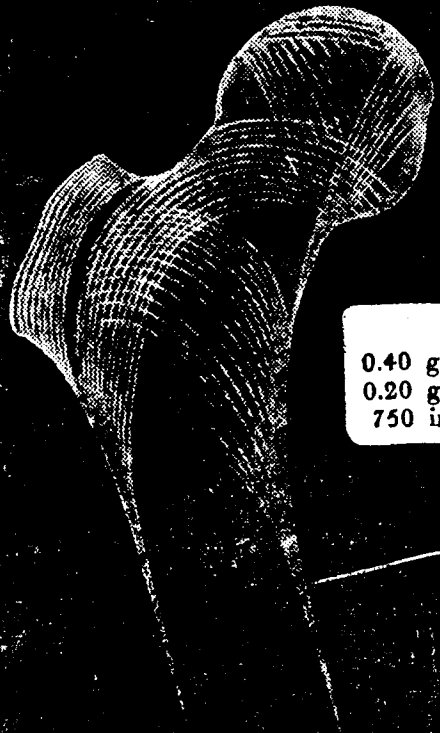
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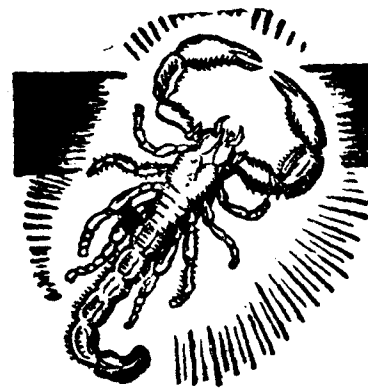
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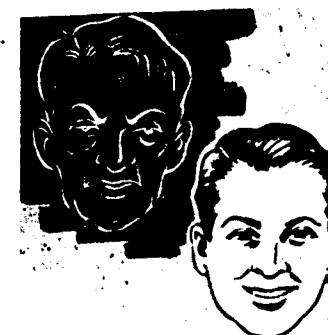


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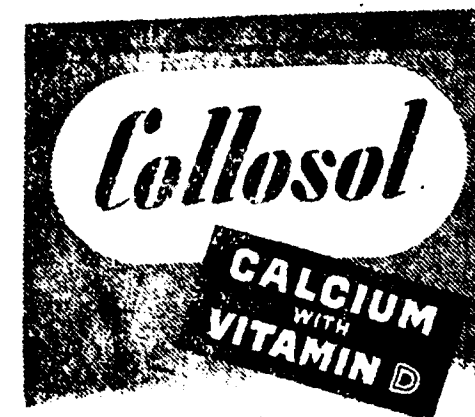


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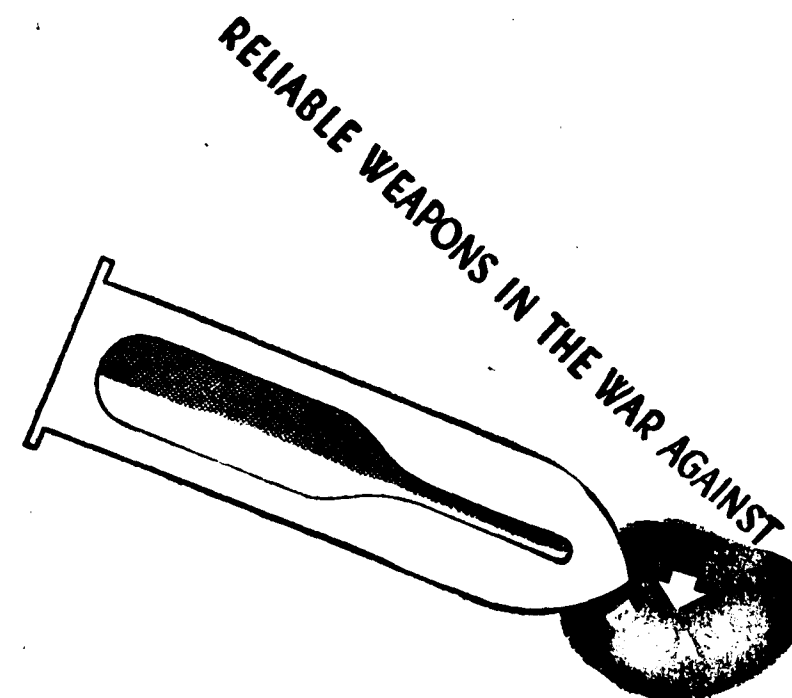
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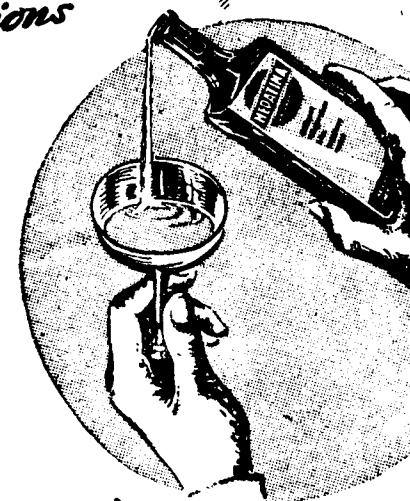
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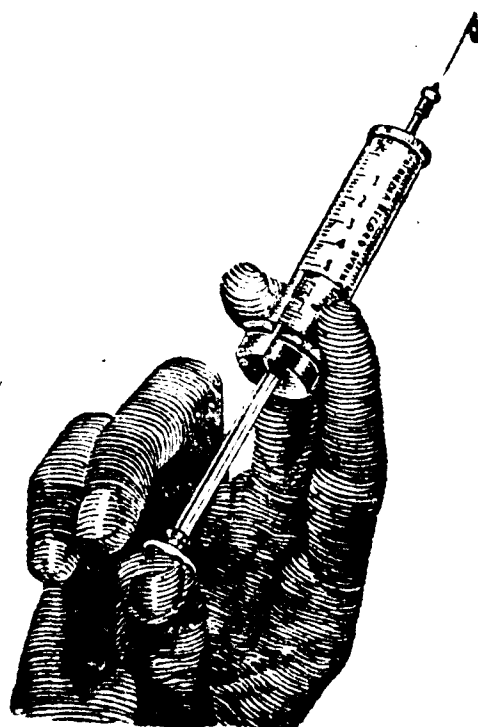
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No. 9

Original Articles

Chronic Abdominal Pain*

R. SUBRAMANIAM, B.Sc., M.D. (MADRAS), M.R.C.P. (LOND.).
Government General Hospital, Madras.

THE subject of this article is a common complaint in any general or patient clinic. Chronic abdominal pain is essentially a medical problem just as an acute abdominal pain is a surgical problem.

The object of my choosing this particular subject is because one needs very little of external laboratory aids in a large majority of cases and yet I have seen, due to a faulty and more often due to a hastily and imperfectly taken history, needless tests are done and at the end of the investigations, the patient and the clinician are none the better or wiser.

It is worth spending a few minutes to find out whether it is really pain that the patient is complaining of. Sometimes a burning sensation or a feeling of discomfort may be referred to by the patient as pain. It is also worth noting the expression that the patient uses so that we will not think of organic lesion when the patient uses such expressions as pulling, kicking, crawling, etc., which suggests a neurosis. Rarely a burning sensation is described by gastric ulcer patients.

Next it is worth asking the patient whether the pain is inside the abdomen or on the abdominal wall. In the latter case there will be superficial tenderness and soreness. It is not a rare thing for a patient suffering from an extra-abdominal pain to be drugged with alkalies and even needless laparotomies done.

The first thing to be elicited is the duration of the pain. If the pain has lasted for several years it is likely to be a benign condition, more so when it has not caused any loss of weight and the patient has been attending to his work in spite of the pain. The next important thing is the site of the pain. It is always helpful to ask the patient to point with one finger only, the site of the pain. Because of the very large number of peptic ulcer patients that are seen in the out-patients' departments, as soon as a patient complains of pain in the abdomen, he is dismissed as a

* (This is an address delivered before the Coimbatore District Medical Association and slightly altered).

case of peptic-ulcer with an alkaline Belladonna mixture. If only he is asked to show the site of the pain it will be surprising to see how many times the pointing finger points to the left of the abdomen; sometimes it is umbilicus, and at other times it is even the hypogastric region. Surely even a novice in medicine will not be for diagnosing peptic ulcer when the pain is in the hypogastric region. Apart from the help we get in a gross way, the site of the pain is also helpful in localising the disease.

It is helpful to decide in a case as to how the pain started originally since at the start the pain is more likely to be typical. If a man says that to start with the pain started 2 or 3 hours after food and was relieved by taking food but afterwards had no relation to food, it easily suggests that one is dealing with an ulcer complication as perigastric adhesion or ulcer turning malignant. Or supposing a man with typical ulcer history says that he had hæmatemesis and subsequently was free from ulcer pain, then the chances are that the hæmatemesis has cured the man of his ulcer and the present symptoms of epigastric distress may not be due to ulcer.

In deciding as to what importance should be attached to the pain, I always ask the patient whether his sleep is disturbed. If pain is sufficiently severe to make a man get up from his sleep night after night, it is not likely to be neurosis and should be considered as organic in origin. These cases are best kept in bed and treated with a strict ulcer diet.

Radiation of the pain, as you know, gives a clue to the diagnosis. For instance, if a patient were to say he has pain in the right hypochondrium and pain or discomfort in the right shoulder, the chances are that we are dealing with a case of cholecystitis. At this stage I would like to emphasise that radiation of the pain is due to the nerve distribution. So when a spinal segment is involved due to other causes also, a similar condition with pain at one site with radiation of pain is likely to occur. I would now recall a case to illustrate this point. A rather obese type of woman with pain in the liver area and hectic temperature ranging between 100°F. to 103°F., was also complaining of pain in the right shoulder. Physical examination showed a just palpable liver and no other abnormality. She did not give any history of dysentery at any time. No history of jaundice either. X-ray of the gall-bladder region failed to show any stones. Bile culture was sterile. Urine was normal, X-ray of the chest on admission was normal. Blood showed moderate leucocytosis with polymorphs predominating. Tentatively hepatitis was diagnosed and the patient was put on Emetine 1 grain I.M. daily for 6 days with no benefit. She was then tried on large doses of Hexamine and Alkalies with no benefit. Then in view of the leucocytosis and the pain in the right hypochondrium we thought of the possibility of pyelitis. This view seemed more reasonable because the nurse brought to our notice that the patient had hæmaturia that morning. It was a very unfortunate event because the woman had her periods four days later and this was only a pilot bleeding. Anyway when a patient with pain, fever and hæmaturia was presented, in spite of the urine culture being sterile, pyelitis was thought of and the patient was put on Sulphadiazine with no benefit. Then blood was tested for agglutination against *Brucella melitensis*, typhoid, paratyphoid and for typhus group with negative results. The fever had lasted nearly for 2 months by now and at this stage auscultation of the chest

showed broncho-vesicular breath-sounds with fine rales over the left hilar region. This was the 3rd time the patient was being X-rayed and for the first time showed a positive finding, namely an active left hilar flare. Even then it did not explain the pain over the liver area and pain over the right shoulder. We took a skiagram of the spine again and this time it showed a narrowing of the interspaces between the 6th and 7th and 7th and 8th dorsal vertebræ. Apparently the shoulder pain was an unconnected thing which occurs in tuberculous subjects, and caused some confusion in this case by occurring over the right shoulder, for the pain in the right shoulder disappeared spontaneously. With strict bed rest and a few Calcium Chloride injections I. V. the temperature settled down promptly. She was also put in plaster jacket and in a few days pain over the liver area also lessened greatly. Unfortunately in this case we could not recover the tubercle bacilli from the sputum even after the X-ray chest showed an active lesion. (Ten days after delivering this address patient expectorated a large amount of muco-purulent sputum which showed tubercle bacilli in large numbers). This case amply serves to illustrate the need for the clinician to be on guard and not to be carried away by just one or two symptoms or signs.

Symptoms accompanying the pain are worth noting. For instance, nausea, vomiting and jaundice accompany gall stone colic. Sometimes a gall stone patient complains of pain or rawness when he puts on his belt or in the case of a woman on tying the saree tightly. Sometimes a journey in a country cart makes the symptoms worse in gall stone colic and in renal lithiasis. Pain relieved by vomiting suggests gastric or duodenal ulcer. At this juncture it is useful to ascertain what relieves the pain and what remedies have been tried and with what result. This is of value in coming to a conclusion about the nature of the disease, as also as to what remedies to avoid. Nothing seems to take away the confidence of the patient as to prescribe a drug which he has tried without benefit. If Morphine is the only drug which will give relief then the trouble is likely to be organic and if of a colicky nature it is likely to be a gall stone or renal stone. Gall stone colic, it is said, is more agonising than the labour pain, by those who have experienced both. Pain that is relieved by an enema is likely to be in the colon. I know a gentleman who used to get an agonising pain in the left iliac fossa periodically at intervals of a few days to a few months. The shortest interval being as short as ten days and the longest interval 3 months. The pain had no relation to food. Neither was it made worse by eating, nor relieved by starving. Soap and water enema with a very good result, did not give any relief either. Patient always got relief 2 or 3 hours after taking a mild purgative like Magsulph or Kruschen salt which caused him to have 2 or 3 liquid motions. The pain was not in the stomach or duodenum as it had no relationship to the intake of food, nor in the colon as it was not related to bowel movement by enema, but in the intermediate portion namely the coils of the small intestines. This gentleman had suffered from this kind of pain for the last 20 years. The only positive history I could get was that the patient had a very severe type of dysentery, probably bacillary as judged from the symptoms. A roentgenogram with barium meal series showed coiled-up appearance of the small intestines in the left iliac fossa. Adhesions, as you know, is not likely to cause pain, but is likely to cause symptoms of intestinal obstruction. So I had the barium meal series repeated and screened the patient; and during screening I

found a definite annular constriction in a portion of the small intestines in the left iliac fossa, and around it adherent, a circular loop of the gut. Evidently this was a portion of the gut which got periodically inflamed and caused pain. This also explained how purgatives relieved him of his pain. After seeing this annular constriction I prescribed for him Belladonna and Castor oil emulsion with some relief but not as much as he used to get from a Saline purge. Then I changed to Neuro-trasentin (Ciba) with very good results. The other less powerful anti-spasmodics like Prostigmin, Spasminon and Bellerger did not give any relief. The ideal thing in this case was to do a resection of the constricted area of the gut and anastomose the rest of the intestines. This I would have advised at a younger age but this patient being past seventy I did not feel justified in advising a major operation. This very same patient came to me with severe burning sensation in the epigastrium. Even on repeatedly asking whether there was pain he denied any type of pain. Thinking of the possibility of hyperchlorhydria I put him on alkalies with no benefit. Then a fractional test meal was done which showed plenty of mucus and absolutely no free acid. Then I put him on Sodabicarb one teaspoonful in a cup of warm water first thing in the morning and acid Hydrochlor dil with Syrup Aurantii after the principal meals and a bland diet. This, as the patient himself put it to me, gave complete control over his new symptom but left untouched his old symptom. This case shows that we have to be on the watch for any fresh development in a patient under our care and not just dismiss him as a neurotic.

When the pain arises from the digestive tract it must bear some relationship with the intake of the food or the digestion or the evacuation of the bowels. If a pain has no relation whatsoever with these processes the cause for the pain must be from outside the digestive tract. When pain comes once in a way, apparently when the patient is quite healthy the probability of allergy is worth bearing in mind. This pain due to allergy may be sufficiently severe to make the patient take to bed or so light as to be only of a nuisance value. The allergy may be due to such common articles of food as milk, eggs, vegetable oils, onion and wheat. The common foodstuffs to which I have found a large group of persons are allergic are prawns, crabs, and oysters. Fortunately not common articles of Indian diet. Quite a number of persons are allergic to bitter-gourds. When puzzled about a case of allergy, the history of a near relative suffering from asthma, eczema or urticaria is of confirmatory value. The symptoms in these cases come on half to three hours after taking the food and lasts for one or two hours. The treatment in these cases is to avoid the foods to which the patient is sensitive. If a person says he can take fried egg but not the boiled egg it is not a question of sensitiveness so much as likes and dislikes, and this patient will not come to grief by taking eggs. Whereas a truly allergic person gets symptoms of gastric upset on taking eggs in any form and even when concealed as in custard powder, cake, etc. To identify the food to which the patient is sensitive a simple diet can be given to start with and a diary maintained as additions are permitted. If a particular food upsets, then it is withheld for a few days and repeated at intervals of a fortnight. If he is really allergic, then when each time that food is introduced he gets gastric upset. This repetition of the experiment is very essential in order to eliminate neurosis and psychological factors.

Now we will take up for consideration pains which are due to extra-abdominal factors causing abdominal pain. Broadbent's dictum "When

a patient complains of abdominal pain examine the heart and when he complains of pericardial pain examine the abdomen," should be remembered by every clinician. A few years ago I saw a case in which a boy of 12 years, complained of pain in the abdomen and was prescribed round-worm treatment. The boy came again and the treatment was repeated twice. When I saw the patient after a few days the pain still persisted. He had an enlarged tender liver, nearly three fingers breadth below the costal margin and further examination showed markedly dilated heart with a pre-systolic murmur in the mitral area. On another occasion I saw a young man admitted as left lobe liver abscess. He had enlargement of the left lobe mainly, nearly five fingers breadth below the costal margin and it was tender. He was also running a temperature of 102°F. Further examination showed a very wide heart boundary, feeble heart sounds and effusion in the left pleural cavity. Pericardial effusion was thought of in this case, and when a needle was put into the pericardium nearly 30 ozs. of clear, straw-coloured fluid was aspirated. This fluid on guinea pig inoculation showed tubercles. Many cases more could be cited and I am sure every one of you would have come across similar ones.

Pain in the abdomen due to systemic infections should be borne in mind. It is only very recently that I saw a gentleman complaining of pain in the epigastrium with complete loss of appetite. He was only 36 years of age, and so the possibility of carcinoma did not arise. On examination he had a very big spleen extending up to the umbilicus and liver four fingers' breadth below the costal margin. Blood smear showed typical appearance of chronic myeloid leukaemia. It is unfortunate that textbooks do not mention this symptom, complete lack of appetite in chronic myeloid leukaemia. This symptom has been observed in nearly all the cases of chronic myeloid leukaemia at the Bernard Institute of Radiology. It clears up after 3 or 4 deep X-ray exposures. Probably pain was produced in this case by peri-splenitis. Talking about peri-splenitis, it occurs in kala-azar and rarely in malaria. In these fevers peri-hepatitis occurs also. During April to June in the year 1942 when a large number of Burma evacuees with malignant tertian infection were in the Government General Hospital, a common complaint was pain in the right hypochondrium. Only in a very small percentage of them the liver was enlarged. Spondylitis, meningo-vascular syphilis and chord tumours may occasionally be the cause of pain in the abdomen. One patient was being treated for nearly three months for duodenal ulcer, when overnight he developed paraplegia with incontinence of urine. C.S.F. in this case showed typical Froin's syndrome. Lipiodol was put in by cisternal puncture and showed extensive meningeal adhesions extending from the 4th dorsal vertebrae to the very end, as shown by the lipiodol by being held at various places right along.

I do not propose to go in detail about the multifarious causes of pain in various regions, but will mention only a few of them and cite a few puzzling cases. HAMILTON BAILEY's dictum "The abdomen is a temple of surprise" is a common experience. When there is pain in the epigastric region the probable cause may be extra-abdominal, such as spinal caries, pleurisy, intercostal neuralgia or a small epigastric hernia at onset, or intra-abdominal due to lesions of stomach, or duodenum or gall-bladder or liver. The extra abdominal factors are common to all the other regions of the abdomen. The gastric disorders likely to cause pain are gastritis, gastric ulcer, or rarely gastric carcinoma. In gastritis the pain may bear

no relationship to food, but history may show dietetic indiscretion. "Not knowing when to eat, what to eat and how to eat" are the causes of gastritis. Early alcohol and excessive smoking or chewing of tobacco may be a cause. In gastric ulcer the typical story of, food, pain, relief, gives away the diagnosis provided there are no complications as malignancy setting in, or adhesions outside the ulcer with neighbouring viscera when the pain becomes continuous. With adhesions to neighbouring viscera, the clinical symptoms become difficult to follow as they get modified by the organ to which the stomach has become adherent. I saw a man with a history of excruciating pain in the epigastrium occurring particularly in the early hours of the afternoon and in the night, though at no time was he completely free from pain. When the pain was excruciating, he used to sweat all over the body. With vomiting there was relief from pain and sweating. Barium meal did not reveal any abnormality. F.T.M. showed acid within normal limits. In view of the profuse sweating, gastric ulcer, with adhesions to some sympathetic plexus, was diagnosed. When the abdomen was opened it showed a gastric ulcer adherent to the head of the pancreas. Partial gastrectomy was done; now for a period of four years there is complete relief from pain as well as from sweating.

Gastric carcinomas are of two types. The one in which ulceration occurs, causes pain and discomfort and is likely to attract clinical attention, and the other type is the schirrous type in which the process goes on silently for a long time, and looks as though it has come on suddenly when symptoms of obstruction, or extreme emaciation with a lump in the abdomen is the presenting feature. In gastric carcinoma, causing pyloric obstruction, loss of appetite is a marked feature, and the visible peristalsis is very poorly marked, even while barium meal screening shows nearly 4ths retention at the end of 24 hours.

I wish to mention at this stage gastric crisis in tabetics. Tabes is not so rare as we are made to believe, and should be borne in mind, so that it will not be missed when we come across one. This is attended with severe epigastric pain and may occur before other classical symptoms of tabes as ataxia and loss of deep reflexes occur. The characteristic features are sudden onset of pain, attended by urgent vomiting. There is no rise in temperature and the blood pressure is raised. Barring lead colic, in no other acute abdominal pain is the blood pressure raised. History of syphilis is constant.

Duodenal ulcer with adhesion is likely to cause pain in the epigastric region. Gastric and duodenal ulcers are benefited by bed rest and modified Sippy's diet. If on ulcer diet there is no benefit, then we are not dealing with a simple duodenal ulcer or gastric ulcer but we are dealing with an ulcer with adhesions outside, in which case medical treatment is of no avail. In ulcer with peri-gastric adhesions, barium meal series and screening at different angles show persistent deformity in the stomach or duodenal outline whereas in ulcer with spasm the irregularity disappears.

Talking about gastric disorders I wish to quote WILLIAM J. MAYO's saying "The stomach is often like the fire-box, reporting trouble when the fire is elsewhere in the body", and Sir MOYNIHAN's saying "The stomach is so sensitive an organ, that it cannot refrain from weeping when its neighbours are in trouble and its voice is sometimes so loud as to drown the

voice of the real sufferer". So we must look for trouble elsewhere even when symptoms are suggestive of a gastric disorder.

Liver and gall-bladder affections may cause pain in the epigastrium. Particularly cholecystitis and left lobe abscess liver. We are so much impressed about liver abscess occurring in the right upper quadrant, that when the abscess occurs once in a way in the left lobe, we miss the possibility of the liver abscess. One patient came to the out-patient department complaining of severe and excruciating pain in the epigastrium with cold sweat and in a state of shock. On examination he had a just palpable liver and the abdomen was soft and freely moving with respiration. There was no history of dysentery. All the same I put a provisional diagnosis of hepatitis and admitted him for observation. A few hours later he recovered from the state of shock, was ambulant and free from pain. On further questioning he gave a history of pain felt in the epigastrium which was made worse 2 or 2½ hours after taking food. In view of the history of pain in relation to food we had a barium meal series done to visualise the duodenal ulcer, but found duodenal cap was normal and no ulcer in the stomach either. Fractional test meal showed low acid. A few days later the patient went into a state of shock and physical examination failed to reveal anything abnormal excepting a feeble thready pulse and weak heart sounds, both of which could be explained by shock. The patient recovered from this attack also. We asked our consulting surgeon to open him as a case of peri-gastric adhesion. In view of the slight enlargement of the liver and tenderness of the same he wanted the patient to have a course of Emetine. Patient was given Emetine 1 grain I.M. daily and on the third night the patient went into a state of shock and died. Post-mortem was done in this case and it revealed an abscess in the left lobe which had burst into the peri-cardium. Probably there was a mild leak into the peri-cardium on the first occasion and on the third occasion it must have been massive thereby causing the death of the patient. A thorough examination failed to show ulcer in the stomach or duodenum. Probably the pain periodicity was due to pyloroduodenal region filling up and pressing on the abscess. Jaundice, though not mentioned as a symptom in abscess liver, occurs fairly frequently.

Sometimes liver may enlarge first before symptoms referable to the heart are evident, particularly is this the case with adherent pericardium and tuberculous peri-carditis. I know a case with a big liver which was tender in a girl of about 15 and was for some time a puzzle. Every investigation was a blank for some time. At the end of two months a second X-ray chest showed a markedly dilated heart with effusion. On going back and re-assaying we found two features which could have helped us earlier: (1) A history of undue breathlessness on exertion, though patient was not breathless either at rest or while walking in the wards, and (2) History of contact with an open case of pulmonary tuberculosis. This girl's sputum was positive for tubercle bacilli at the end of two months.

Other causes of pain in epigastrium are pancreatic calculi, chronic pancreatitis, abdominal aortic aneurysm and rarely round-worm infection in children. Some of these organs cause pain in other regions as well.

Pain in the hypochondrium on the right side, is mainly due to duodenal ulcer and less often due to gall stones and liver disorders. In the left hypochondrium may be a peri-splenitis. In the umbilical region tuberculous

peritonitis, carcinoma of the pylorus or colon and umbilical hernia are the common causes, while in the lumbar region a renal stone or pyelitis or tuberculous kidney are frequently responsible.

In the iliac region on the right side appendicitis and affections of the cæcum with tuberculosis, amœbiasis or actinomycosis are the common causes and on the left side chronic ulcerative colitis, chronic bacillary dysentery, ano-rectal syndrome, cancer colon and filarial adenitis are worth bearing in mind.

Before concluding I should like to stress the very important condition psycho-neurosis which is becoming more and more prevalent with the modern conditions of undue strain, stress and frustration. When a lady comes with pain in the pit of the abdomen and goes into elaborate detail about the pain, no useful purpose will be served by any amount of sedatives while the real trouble is an unhappy situation at home causing her all the annoyance from which she finds no solution except to fall sick. A few minutes talk spent in unravelling the misery may mean much saving of needless tests and waste of money. Once when I was talking to an educated lady, I asked her what was causing her mental anxiety. She said she had nothing to worry. She was happy with her loving husband and her fine children. Further talk revealed that her husband was a subject of effort angina and her doctor had told her that any attack may prove fatal. No amount of sedatives is going to be of avail in this case. Explain to her as to what is causing the trouble, after a thorough physical examination, and refuse to yield to the temptation of putting her on a placebo. Neurosis is getting more and more common and has to be treated as a psychological problem and not with drugs which will only fix the neurosis firmly in the mind of the patient.

In this brief article only the fringe of a vast subject has been touched upon.

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Problem of Prolonged Pyrexia*

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PROBLEM of prolonged pyrexia is always a puzzling one to every physician. By this I mean those cases who run prolonged fever of any type for more than ten days, in the absence of any definite conclusive physical signs in the beginning of illness. These cases may well be said as 'Obscure Prolonged Pyrexia' as fever is apparently the sole manifestation. Every day one must be coming across such cases and in many, one must have been puzzled to arrive at a definite diagnosis. Majority of such cases are labelled as either typhoid, tuberculosis, or chronic malaria, but this assumption is not always a fact. In many instances adequate laboratory aids are neither available nor possible. This adds more to our miseries. In all such instances the diagnosis remains obscure and one remains in darkness.

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This problem is an interesting one due to its common occurrence in practice. Though many cases turn out to be enteric, there still remain cases, few of which are due to conditions other than enteric, while the rest remain undiagnosed. Etiology in the last group is obscure.

This problem needs careful and detailed study. We had an inquiry on this problem at Sir Hurlimondas Hospital with the help of special research grants. For two years, we closely studied these cases of prolonged pyrexia, investigated them as much as possible, followed them day by day and all characteristics and behaviour of these fevers were noted. The detailed reports of findings and conclusions of this work are under publication in a separate paper. I will make only a reference to that work, when necessary, in this article. I intend here to discuss briefly this well known problem and present my own impressions about this.

'Fever' is number one entity in our practice and truly speaking we know least about it. When can we say that the patient is suffering from 'Fever'? To answer this it will be essential to know the range of temperature which can be said normal in an individual. Usually accepted normal temperature of 98.4°F. (37°C.) is subject to individual, climatic and regional variations. In tropics temperature normally ranges between 97°F. to 98°F. The next question is that what should be considered the maximum limit of normal temperature? This will depend upon the activity of the heat centre. REIMANN who described a group of cases of pyrexia lasting for years without obvious evidence of disease, loss of weight, or positive results of all elaborate diagnostic tests, suggested that the normal limits of temperature range should be 97°F. to 100°F. Such a condition of increased temperature is named as 'Habitual Hyperthermia.'

In all these cases of prolonged obscure pyrexia, fever or increased body temperature is the sole manifestation, till some other signs develop afterwards. This leads us to think of all the conditions in which there is prolonged pyrexia. Increased temperature is either due to some infection in body or due to some disturbances in heat-regulating mechanism. Pathogenesis and mechanism of rise in temperature in all these conditions are by no means so clear.

There are many clinical entities, which cause 'Obscure Prolonged Pyrexia.' Pyrexia may be either continuous, remittent or intermittent. To my mind these conditions can be grouped under three chief groups:—

- (1) Conditions due to definite infections.
- (2) Conditions due to disturbances in heat-regulating mechanism.
- (3) Conditions which remain obscure in spite of all investigations.

Majority of cases, i.e., about 70%, fall under the first group. Second group includes about 2 to 5% cases while about 25% cases remain 'obscure at present' even at the end of all available laboratory and other aids. This is a real problem needing an urgent solution.

We shall now deal with the various conditions grouped under various heads:

Infections.—Infection can be divided as (A) Generalised, (B) Localised

A. GENERALISED INFECTIONS:—These infections are either due to bacteria, protozoa, spirochaetes etc. Diagnosis in all these conditions is based on further laboratory and other additional examinations.

1. *Bacterial infections*:—*(a) Septicæmia and pyæmia; *(b) enteric infection; *(c) tuberculosis; *(d) focal infection—septic foci in body; *(e) brucellosis—undulant fevers; (f) tularæmia; (g) melloïdosis; and (h) puerperal infection in females etc.

2. *Protozoal infections*:—*(a) Malaria; *(b) leishmaniasis; *(c) amœbiasis; (d) trypanosomiasis; and (e) histo-plasmosis.

3. *Rickettsia bodies and bartonella*:—*(a) Typhus group of fevers; and (b) bartonellosis.

4. *Spirochætal infections*:—*(a) Syphilis—secondary stage as well as visceral syphilis in general; (b) relapsing fever; *(c) leptospirosis; and *(d) rat-bite fever.

5. *Virus and probably due to virus*:—*(a) Influenza; (b) rabies; (c) dengue—if prolonged; (d) glandular fever; and *(e) rheumatic fever.

6. *Fungus infections*:—(a) Due to actinomyces group; and (b) fungus infections of lung.

B. *LOCALISED INFECTIONS* and other local conditions, probably due to some infection.

1. *Central nervous system*:—*(a) Encephalitis; *(b) tuberculosis meningitis; *(c) benign lymphocytic meningitis; *(d) basal syphilitic meningitis; and (e) cerebral abscess in silent areas.

2. *Respiratory system*:—*(a) Early pulmonary tuberculosis; *(b) miliary tuberculosis; *(c) epituberculosis; (d) pulmonary amœbiasis—primary; (e) pulmonary syphilis; (f) pulmonary new growths with infection; *(g) eosinophilic lung; *(h) closed deep seated lung abscess; *(i) inter lobar empyema; (j) infected pulmonary cyst; and (k) low grade pulmonary infections.

3. *Cardio-vascular system*:—*(a) Subacute bacterial endocarditis; *(b) syphilitic aortitis in some cases; and (c) rheumatic myocarditis.

4. *Gastro-intestinal system and blood*:—*(a) Amœbic infection of liver; *(b) syphilis of liver; *(c) cirrhosis of liver—in some cases. Specially infantile cirrhosis; (d) infected intra-hepatic hydatid cyst; (e) other intra-hepatic infections; *(f) chronic cholecystitis; *(g) tuberculosis of intestines; *(h) tuberculosis of peritoneum; *(i) tuberculosis of lymphatic glands of abdomen; *(j) intestinal amœbiasis; *(k) fever due to intestinal worm infections; and *(l) fever is often present in pernicious anæmia, aleukæmic, leukæmia, hæmolytic-anæmias etc.

5. *Urino-genitary system*:—*(a) Pyelitis; *(b) pyelo-nephritis; *(c) pyonephrosis; *(d) renal tuberculosis; (e) chronic cystitis; (f) pyo-salpinx and tubo-ovarian; (g) chronic endometritis—specially of tuberculous origin.

6. *Bones and joints*:—*(a) Tuberculous infection of deep seated bones; *(b) rickets in children; (c) Brodie's abscess in bone; (d) Barlow's disease in children; and (e) infantile scurvy—some cases.

7. *Miscellaneous*:—(a) Deep seated abscess—specially perinephric, subdiaphragmatic etc.; *(b) septic focus—specially in teeth, tonsils, adenoids, ear, mastoid etc.; *(c) chronic sinusitis; and *(d) teething in children.

The above list includes many conditions which can produce obscure pyrexia for a long time. In some the temperature rises high, while in some it might be very slightly raised. In all these conditions, there are

insignificant physical signs and so I have included them as "Obscure Pyrexia" conditions.

It is not possible here to describe all the conditions, as space does not permit. I would request readers to refer to standard books for details. In majority of abovesaid conditions one has to rely on accessory investigations, for diagnosis. Conditions which are marked with '*' sign, are quite commonly met with in this area.

I would like to touch a few salient features of some of the important conditions described above. Diagnosis of enteric fevers is quite easy. Any continuous fever for more than 10 days in the absence of any physical sign is to be considered as enteric, unless proved otherwise. This group of fevers consists of 50% of all obscure prolonged pyrexia cases.

Septicæmia is not so common a condition and its diagnosis is made easy by blood culture.

Early *pulmonary tuberculosis* in adults and epituberculosis in children are often missed, as there are no definite signs. In any case, with irregular nature of fever and with loss of weight etc., tuberculosis must be thought of. It will be a good thing, if possible, to X-ray the chest in all such cases of irregular obscure pyrexia of prolonged nature. Recently a few cases of *undulant fever* have been seen by me and others in Bombay. Possibility of Brucellosis is to be thought of in patients in whom bouts of fever come on and off, with generalised pains in body. The infection may last for two years, if untreated. Blood culture and agglutination tests are useful for confirmation.

Malaria is the most likely condition, if there is the history of attacks of fever on and off. Some cases become resistant to Quinine and in them arsenic might have some effect.

Kala-azar cases are often seen now, being imported from other places where sternal puncture and serum tests clear up the diagnosis.

Amœbiasis, specially hepatic, is often very confusing. In all prolonged fever cases this must be borne in mind. Cases of *typhus* are sometimes seen. The typical rash, type of temperature and agglutination test are useful in diagnosis.

Tuberculous meningitis needs a special note. Often in children, disease starts as fever and there might not be any nervous sign till very late. Diagnosis becomes very difficult in such cases in the beginning. C. S. F. examination will help here. *Eosinophilic lung* is quite a frequent condition seen here. It is often mistaken as tuberculosis. Fever is present in about 15% cases of this syndrome. Typical blood picture is enough for diagnosis.

Subacute bacterial endocarditis cases are not uncommon. They are often mistaken as chronic malaria. Careful examination of heart and blood culture will confirm the diagnosis. *Syphilitic aortitis* often gives rise to low prolonged fever. Screening of chest and blood for W. R. test are useful in diagnosis.

Liver conditions are very important in some cases of obscure pyrexia. Hepatic amœbic abscess stands first in the list. Screening of diaphragm and exploratory puncture may solve the doubt. Obscure pyrexia is also

observed in some cases of early portal cirrhosis of liver. Pyelitis may cause obscure pyrexia and remain obscure, till urine is examined.

Tuberculosis of kidney is very important in this respect as diagnosis is often very difficult. X-ray of kidney after ascending pyelography and urine culture for *B. tuberculosis* might help to solve the doubt.

Infections of ovary, tube and endometrium in females are often the sources for the obscure pyrexia. Careful examination and investigations help in diagnosis. Infection of low grade in a deep seated bone often is confusing. X-ray will help here.

Local sepsis in tonsil is often a source, specially in children, for this condition. Careful search for such an infective focus must be done. Tonsil and sinuses are chief amongst the list of septic foci.

I have only touched on the common conditions in my discussion and my list is by no means complete.

II. Heat-regulation disturbances.—Now we shall discuss the conditions of II group—which are probably due to some disturbances in heat-regulating mechanism. This disturbance can be either due to effect on—(1) Heat-Regulating Centre; (2) Heat-Production and (3) Heat-Loss.

This is a very complicated and controversial matter, as our knowledge about the mechanism is not perfect. Regulation of temperature within normal range, under various changing circumstances, depends on the balance between heat-production and heat-loss. There are innumerable factors which influence heat-production and loss, such as changing climate, environments, exercise, increased metabolism etc. There are some conditions, where increased temperature is due to some such disturbances only. There is no infection at all in body, attributable as a cause for fever. These conditions are:—

- (1) Habitual hyperthermia—Here heat-regulating mechanism is such that body temperature remains high without any bad effect.
- (2) After traumatic head injury—patient might run temperature for 15 to 20 days in some instances.
- (3) Neurogenic hyperthermia—due to some interference near heat-centre—hypothalamus and pituitary area.
- (4) Pituitary (anterior) dyscrasia.
- (5) Cerebral thrombosis—in some cases there is persistent low temperature for about two weeks.
- (6) Some cerebral tumors near heat centre.
- (7) Heat-exhaustion fever and heat stroke.
- (8) Rise in temperature due to increased metabolism—this is observed in hyperthyroidism; same cause is partly applicable to temperature rise in Ewing's sarcoma, leukaemia, Hodgkin's disease (Pel-Ebstein fever) hæmolytic anæmia etc.
- (9) Sometimes fever is present in morasmus, dehydration etc. (inanition fever). This might be due to decreased heat-loss because of dehydration, and depressed activity of sebaceous glands.
- (10) Drug fevers:—Prolonged pyrexia of low nature is sometimes observed after drug therapy—specially after sulphonamide therapy. This is also observed after prolonged use of barbiturates.

(11) Sometimes obscure prolonged pyrexia is observed in hysteria, maniac depressive psychosis, and malingering. I would name them as 'Psychogenic fevers'.

These are the conditions, to my mind; due to some disturbances, in heat-regulation. Some are common while some are very rare and equally difficult to diagnose. In all these conditions temperature rise is usually very small in contrast to what we get in "Infection Group."

III. Unknown causes.—After excluding the above two groups, there remains a group of fever where no diagnosis can be arrived at, even with all laboratory and other aids available at present. Many of these cases might be due to some unknown infection, either bacterial or virus. This group cannot be ignored as it includes no less than about 25% of cases of obscure pyrexia. Further progress in science will solve our difficulty in the near future.

In our series of 138 prolonged obscure pyrexia cases 51% cases were due to enteric infection, 15 were due to conditions other than enteric, such as chronic malaria, subacute bacterial endocarditis, undulant fever, eosinophilic lung, pulmonary T.B., tuberculous meningitis, typhus, chronic-cholecystitis, rheumatic fever, deep seated abscess, etc., and rest 34 per cent. cases remained undiagnosed. One of the cases in the last group was very interesting. One male child aged 12 years had daily intermittent temperature ranging from 98°F. to 103°F. for the last 7 months, without much loss of body weight, appetite, etc. No positive sign nor any positive finding on investigations could be detected. He did not respond to our empirical therapies. No diagnosis could be arrived at and he left the hospital in the same condition. Such cases really put our mind rolling in the dark, hoping for a ray of light in the near future. Such cases have been reported by others also. They pull on for years in the same condition—some of them must be due to some disturbance in heat-regulating mechanism, but nothing can be said with certainty.

Investigation of cases.—To avoid other unnecessary routing examinations, one must think out the most probable etiology and try to confirm it. Routine and culture examinations of urine, blood, stool, and various agglutination tests help in diagnosis, according to conditions. Blood examination in detail, serum reactions, blood culture, and sternal puncture may be necessary in some cases. Screening of diaphragm and X-ray chest must not be overlooked in all such cases. Intradermal Mantoux test is often useful in children. Exploratory puncture may help wherever necessary. It is not possible here to give details of all investigations necessary in each condition. One has to judge, according to merit of the case and proceed further.

Therapeutic aspects.—The treatment depends on the nature of the disease. In 75% cases, definite diagnosis can be made and so treatment will be given accordingly, while in 25% cases no definite diagnosis could be made, and so patient will have to be given only empirical line of treatment.

It is a wise thing to take all continuous fever cases of 2 to 3 weeks duration as enteric and treat accordingly. If fever is of longer duration one should try to arrive at a definite diagnosis, before starting empirical therapies, which at the end cost more than what laboratory and other aids would cost to the patient. Secondly, at the end of the empirical therapy, if the patient is not cured, one has to resort to laboratory aids.

So it is always preferable to investigate such prolonged pyrexia cases in detail, before starting therapies at random. This is true for a patient in a city where all facilities are available. But what about cases in moffusil, where these investigations are neither available nor possible? Under such circumstances it is justifiable to try few drugs empirically, if patient cannot go to a good hospital for investigation. For such cases, I would suggest the following scheme:—

(1) All cases with continuous type of fever of 2 to 3 weeks' duration should be treated as enteric, if they clinically look so.

(2) If fever is irregular, intermittent with sweating on and off, treat as malaria. Quinine group three times a day for a week will suffice. Mepacrine tablets 2 twice a day for 5 to 6 days are often better than Quinine in some cases. If spleen is enlarged and if no response to oral Quinine is found, then it should be given by injection. If all these efforts fail, and still you think it to be malaria, then have a trial with Acetylarsan 3 c.c. intramuscular injections, one every 4th day for 4 to 5 injections. If this has no effect diagnosis will have to be revised.

(3) If any septic focus or such other infection is suspected, a trial with Sulphadiazine or Sulphamerazine tablets—2 tablets 4 times a day for about 5 to 6 days is worth giving if patient has no other contra-indication. Some advocate Penicillin in such obscure cases, but it is too costly and not available in moffusil. Secondly, one is not certain about its effect as all organisms are not sensitive to Penicillin; so use of Penicillin at random is not justifiable at present.

(4) If there is any history of amœbiasis and slight tenderness on liver area, a course of Emetine gr. one with Strychnine gr. 1/60 daily for about 7 to 8 days is worth a trial.

These are the few suggestions. There can be no thumb-rule in all cases, and one has to take all factors into consideration. Before I conclude, a word about "diet" in these cases will not be out of place. I have observed that we put unnecessary restrictions in diet in such cases. So often patients are given too poor a diet. In all such cases diet must be liberal in quantity and quality. In enteric cases also diet should be liberal. I give to my enteric patients some solid diet, such as boiled eggs, potatoes, vegetables, meat, rice-kanji, etc., besides liquids. I have met with no bad effects. Patients like such things and relish well. No doubt, individual cases should be judged for this. In other fevers, diet should be still more liberal and I see no objection in giving them nearly full diet if no other contra-indication is present. At least 2,500 calories daily must be made up from the feeds. I wish feeding of a patient should be considered equally important as drugging.

These are the few things which might help in dealing with the problem of prolonged pyrexia at present.

Marasmus*

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Synonym.—Infantile wasting.

Definition.—It is a condition of nutritional disorder of early childhood caused either by dietetic errors or pathological conditions.

Etiology.—For the sake of description, it is grouped under two main captions:—

A. BELOW 2 YEARS:—1. *Congenital.*—(a) Prematurity; (b) hereditary syphilis; (c) hypertrophic pyloric stenosis; (d) congenital duodenal stenosis; and (e) congenital heart diseases.

2. *Rickets.*

3. *Digestive.*—(a) Summer diarrhoea; (b) gastro-intestinal catarrh; (c) dietetic errors; (d) infantile diarrhoea; (e) intestinal worms; (f) chronic constipation; (g) defective cleanliness in nursery; and (h) ill-balanced diet, e.g., excess of fat, casein or sugar in diet.

4. *Defective feeding.*—(a) Over or under feeding; and (b) use of condensed milk.

5. *Obstruction to suckling.*—(a) Stomatitis; (b) too small hole in teat of the feeding bottle; and (c) mechanical defects, e.g., hare lip, facial paralysis, nasal blocking or mere weakness.

B. ABOVE 2 YEARS:—1. *Idiopathic.*

2. *Pulmonary tuberculosis.*

3. *Infections.*—(a) Toxæmia of the new born; (b) pyelitis; (c) latent empyema; (d) broncho-pneumonia; and (e) atelectasis of the lung.

4. *Constitutional.*—(a) Asthma; (b) coeliac disease; (c) recurrent bronchitis; and (d) merycism (rumination).

5. *Nervous.*—(a) Unclean habits; (b) nervous disposition; (c) unhygienic environment; (d) dark, congested rooms; and (e) cyclic vomiting.

Clinical picture.—The child is usually very fretful and of peevish nature. The growth is shunted resulting in delay in sitting up and teething associated with the manifestations of rickets. There is extreme emaciation and loss of weight as a result of which the bones stand out prominent, muscular tone gets poor and thin; the skin becomes loose and thin. Progressive wasting thus leads to general debility. The patient gradually becomes anæmic and anasarca develops. Low fever persists throughout the course of sickness.

Bowel disorders (e.g., constipation with alternate diarrhoea, undigested curds of protein and greasy masses of soaps and fats or green and explosive stools due to excess of carbohydrates) are always present. Ocular affections like xerophthalmia, night-blindness, keratomalacia usually accompany the condition. The patient is very much liable to recurrent attacks of respiratory catarrh and to skin affections like impetigo, phrynodema, etc. Liver and spleen may or may not be enlarged.

Complications.—(a) Anasarca; (b) cancerum oris; (c) broncho-pneumonia; (d) thrush; (e) bed sores; (f) otitis media; (g) infective enteritis; (h) boils and abscesses; (i) B. coli and T.B. infection; and (j) gangrene.

* Specially contributed to THE ANTISEPTIC.

Prognosis.—Always doubtful. A patient improving very satisfactorily may all on a sudden get sudden collapse and die, or a worst case may make spontaneous improvement. Gradual improvement is a sign for perfect recovery.

Death is always due to—(1) Food intoxication; (2) sudden or severe diarrhoea; and (3) secondary infection.

Treatment.—**A. GENERAL**—1. Fresh air.

2. Sunshine (morning sun-rays).

3. Cleanliness.

4. Warmth (protection from chill after bath).

B. FOR THE MOTHER—1. Stool examination and a course of anti-hook-worm therapy if necessary.

2. **R** Ferri et Ammon Citras ... gr. xxx
Liq. Arsenicalis ... ℥ iii
Spt. Chloroform ... ℥ xv
Glycerine ... 3 i
Aqua anethi dest. ad ... 3 i

Mft. mist. one—one dose thrice daily.

3. Ostelin liquid or Adexolin liquid (Glaxo) or Haliverol (P. D. & Co.)—ten drops thrice daily in milk or fruit juice.

4. Irradiated Calcinol granules (Reptakos, Brett & Co.) or Ostocalcium tablets (Glaxo)—one tea-spoonful (heaped) or one tablet thrice daily after food.

5. Berin or Benerva 3 mg. tablets—one tablet thrice daily after food.

6. **R** (a) Livadex (B. D. H.)—2 c.c. × 6 amps.

(b) Benerva (Roche)—50 mg. × 6 amps.

(c) Sandoz 'Calcium'—10% 2 c.c. × 6 amps.

One amp. each mixed I.M. on alternate days.

7. Auto-hæmotherapy—2 c.c. I.M. on the intervening day.

8. Symptomatic treatment.

C FOR THE CHILD—1. *General*—(a) Fresh air; (b) daily bath; (c) protection from chill; (d) maximum sleep; (e) face and arm exposed to morning sunrays; (f) to remain out of doors 4 hours in winter and 8 hours in summer; and (g) gentle massage (in morning sunshine) of the body with ½ ounce of Shark Liver oil or Olive oil twice daily.

2. *Medicinal*—(a) Ferri et Ammon citras gr. xv to xxx daily in divided doses.

(b) **R** Brewer's yeast ... 1 tab.
Calin ... 1 tab.
Nicotinic acid ... 1 tab.
Calcium Lactate ... gr. v
Sugar of milk ... gr. v

Pt. pulv. one—one powder thrice daily in milk or honey.

(c) Keep off constipation by use of Mellin's food or Mead's dextrin-maltose or additional sugar.

(d) Move the bowels daily with ½ grain of grey powder or half tea-spoonful of Californian syrup of figs or Liquid Paraffin at bed time.

(e) In very severe cases, blood transfusion of 2 to 3 oz. of whole blood.

3. *Dietetic*—(a) Mother's milk is the best.

(b) Correction of defects in bottle feeding.

(c) Diet should yield 50 to 60 per lb. of body weight.

(d) Plenty of vitamins A and D, Calcium, etc.

(e) Three to four tea-spoonfuls of orange or tomato juice diluted with water or sweetened with sugar daily. A tea-spoonful of Cod-liver oil or 1 to 2 drops of Halibut liver oil thrice daily.

(f) Artificial food:—The food should be poor in fat and relatively rich in carbohydrates.

(i) Sweetened condensed milk 2 dr. to 3 oz.

(ii) Half-cream dried milk—1 dr. to 1 oz. with Dextrin-maltose (take the cream off the milk for the first few days till it attains yellow-brown colour).

Patent preparations are half cream (Glaxo) or trumilk, Cow and Gate's skimmed milk or klim. In fat indigestion, stools become loose and pale where such food is indicated.

(iii) Starchy food.

(iv) Sugar may be given in plenty 12 to 15%—the better form being Dextrin-maltose but reduce it when the fermentative diarrhoea sets up indicating carbohydrate indigestion (stools become thin, frothy and sour-smelling).

(v) 'Buttermilk' in fermentative diarrhoea e.g., 'Eledon' by Nestles or Anglo-Swiss Milk Co.

(vi) Milk and water thickened with Bengers' or Mellins' food.

(vii) Lactic acid milk (obtained by the culture of lactic acid bacillus and incubating this in milk for 12 hours).

To a pint of cow's skimmed milk boiled and cooled—40 drops of B.P. Lactic acid drop by drop and stir while suitable quantities of water is left, add sugar and warm before use—avoid curdling.

(viii) **R** Boiled cow's milk ... 1 pint.
Water ... ½ pint.
Dextrin-maltose ... 2 level tea-spoonfuls.

Warm and mix up in a saucepan. Add two level tea-spoonfuls of Savory and Moore's food which has been previously made into a paste with cold water. Allow it to stand, warm for 10 minutes and then bring to the boil. Give the boy 2½ of this per lb body weight (according to age) daily.

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Poor Eye Sight*

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POOR sight is admitted to be one of the most fruitful causes of retardation in the schools. It is estimated that it may reasonably be held responsible for a quarter of the habitually "left backs," and it is commonly assumed that all this might be prevented by suitable glasses.

There is much more involved in the defective vision, however, than mere inability to see the blackboard, or to use the eyes without pain or discomfort. Defective vision is the result of an abnormal condition of the mind, and when the mind is in an abnormal condition it is obvious that none of the processes of education can be conducted with advantage. By putting glasses upon a child we may, in some cases, neutralize the effect of this condition upon the eyes and by making the patient more comfortable may improve his mental faculties to some extent, but we do not alter fundamentally the condition of the mind and by confirming it in a bad habit we may make it worse.

It can easily be demonstrated that among the faculties of the mind which are impaired when the vision is impaired is the memory: as a large part of the education process consists of storing the mind with facts, and all the other mental processes depend upon one's knowledge of facts, it is easy to see how little is accomplished by merely putting glasses on a child that has "trouble with its eyes." The extraordinary memory of primitive people has been attributed to the fact, that, owing to the absence of any convenient means of making written records, they had to depend upon their memories, which were strengthened accordingly; but in view of the known facts about the relations of memory to eye-sight it is more reasonable to suppose that the retentive memory of primitive man was due to the same cause as his keen vision: namely, a mind at rest.

The primitive memory as well as primitive keenness of vision have been found among civilized people, and if the necessary tests had been made it would doubtless have been found that they always occur together, as they did in a case which recently came under my observation. The subject was a child of ten with such marvellous eye sight that she could see the moons of Jupiter with the naked eye, a fact which was demonstrated by her drawing a diagram of these satellites which exactly corresponded to the diagram made by persons who had used a telescope. Her memory was equally remarkable. She could recite the whole content of a book after reading it, as LORD MACAULAY is said to have done, and she learned more Latin in a few days without a teacher than her sister, who had six dioptries of myopia, had been able to do in several years. She remembered five years afterwards what she ate at a restaurant, she recalled the name of the waiter, the number of the building and the street in which it stood. She also remembered what she wore on this occasion and what every one else in the party wore. The same was true of every event which had awakened her interest in any way, and it was a favourite amusement in her family to ask her what the menu had been and what people had worn on particular occasions.

When the sight of two persons is different it has been found that their memories differ in exactly the same degree. Two sisters, one of whom had

only ordinary good vision, indicated by the formula 20/20, while the other had 20/10, found that the time it took them to learn eight verses of a poem varied in almost exactly the same ratio as their sight. The one whose vision was 20/10 learned eight verses of the poem in fifteen minutes, while the one whose vision was only 20/20 required thirty-one minutes to do the same thing. After palming, the one with ordinary vision learned eight more verses in twenty one minutes, while the one with 20/10 was only able to reduce her time by two minutes, a variation clearly within the limits of error. In other words, the mind of the latter being already in normal or nearly normal condition, she could not improve it appreciably by palming, while the former, whose mind was under a strain, was able to gain relaxation, and hence improve her memory, by this means.

When the two eyes of the same person are different a corresponding difference in the memory has been noted according to whether both eyes were open, or the better eye closed. A patient with normal vision in the right eye and half-normal vision in the left when looking at the Snellen test card with both eyes open could remember a period for twenty seconds continuously, but could remember it only for ten seconds when the better eye was closed. A patient with half normal vision in the right eye and one-quarter normal in the left could remember a period for twelve seconds with both eyes open and only six seconds with better eye closed. A third patient with normal sight in the right eye and vision of one-tenth in the left could remember a period twelve seconds with both eyes open and only two seconds when the better eye was closed. In other words, if the right eye is better than the left memory is better when the right eye is open than when only the left eye is open.

Under the present educational system there is a constant effort to compel the children to remember. These efforts always fail. They spoil both the memory and the sight. The memory cannot be forced any more than the vision can be forced. We remember without effort, just as we see without effort, and the harder we try to remember or see the less we are able to do so.

The sort of things we remember are the things that interest us, and the reason children have difficulty in learning their lessons is because they are bored by them. For the same reason among others their eyesight becomes impaired, boredom being a condition of mental strain in which it is impossible for the eye to function normally.

Some of the various kinds of compulsion now employed in the educational process may have the effect of awakening interest. Betty Smith's interest in winning a prize, for instance, or in merely getting ahead of Johnny Jones, may have the effect of rousing her interest in lessons that have hitherto bored her, and this interest may develop into a genuine interest in the acquisition of knowledge; but this cannot be said of the various fear incentives still so largely employed by teachers. These, on the contrary, have the effect usually of completely paralyzing minds already benumbed by lack of interest, and the effect upon the vision is equally disastrous.

The fundamental reason, both for poor memory and poor eyesight in school children, in short, is our irrational and unnatural educational system. Montessori has taught us that it is only when children are interested that they can learn. It is equally true that it is only when they are

* Specially contributed to THE ANTISEPTIC.

interested that they can see. This fact was strikingly illustrated in the case of one of the two pairs of sisters mentioned above. Phebe, of the keen eyes, who could recite whole book if she happened to be interested in them, disliked mathematics and anatomy extremely, and not only could not learn them but became myopic when they were presented to her mind. She could read letters a quarter of an inch high at twenty feet in a poor light, but when asked to read figures one to two inches high in a good light at ten feet she miscalled half of them. When asked to tell how much 2 and 3 made, she said "4", before finally deciding on "5" and all the time she was occupied with the disagreeable subject the retinoscope showed that she was myopic. When I asked her to look into my eye with the ophthalmoscope she could see nothing although a much lower degree of visual acuity is required to note the details of the interior of the eye than to see the moons of Jupiter.

Short-sighted Isabel, on the contrary, had a passion for mathematics and anatomy, and excelled in those subjects. She learned to use the ophthalmoscope as easily as Phebe had learned Latin. Almost immediately she saw the optic nerve, and noted that the center was whiter than the periphery. She saw the light-colored lines, the arteries; and the darker ones, the veins; and she saw the light streaks on the blood vessels. Some specialists never become able to do this, and no one could do it without normal vision. Isabel's vision, therefore, must have been temporarily normal when she did it. Her version for figures, although not normal, was better than for letters.

In both these cases the ability to learn and the ability to see went hand in hand with interest. Phebe could read a photographic reduction of the Bible and recite what she had read verbatim, she could see the moons of Jupiter and draw a diagram of them afterwards, because she was interested in these things; but she could not see the interior of the eye, nor see figures even half as well as she saw letters, because these things bored her. When, however, it was suggested to her that it would be a good joke to surprise her teachers, who were always reproaching her for her backwardness in mathematics, by taking a high mark in a coming examination, her interest in the subject awakened and she contrived to learn enough to get seventy-eight per cent. In Isabel's case letters were antagonistic. She was not interested in most of the subjects with which they dealt and, therefore, she was backward in those subjects and had become habitually myopic. But when asked to look at objects which aroused an intense interest her vision became normal.

When one is not interested, in short, one's mind is not under control, and without mental control one can neither learn nor see. Not only the memory but all other mental faculties are improved when the eyesight becomes normal. It is a common experience with patients cured of defective sight to find that their ability to do their work has improved.

A teacher reported that one of her pupils used to sit doing nothing all day long and apparently was not interested in anything. After the test card scheme was introduced into the classroom and his sight improved, he became anxious to learn, and speedily developed into one of the best students in the class. In other words, his eyes and his mind became normal together.

Test card scheme for the prevention of myopia in schools.—*Practice of the Snellen test card*:—Place the Snellen test card upon the

wall of each class-room. Every day the children should read silently the smallest letters they can see from their seats, with both eyes together and with each eye separately, the other eye being covered with the palm of hand, avoiding any pressure upon the eyeball. Appoint a period of five minutes for it in the beginning of school work. It should be the duty of the teachers to note that all children read the test card with blinking. The practice of five minutes daily is sufficient to improve the sight of all children in one week and to cure defective eye-sight after some time.

This plan was followed by the institutions of Khurja. 820 eyes were examined and 249 were recorded defective at the beginning of the session. During the session the students were merely encouraged to read the Snellen test card daily. At the close of the year again, the eyes of the same students were examined. 99 out of 249 defective eyes had attained normal vision, while 85 showed marked improvement.

A book-keeper nearly seventy years of age who had worn glasses for forty years found after he had gained perfect sight without glasses that he could work more rapidly and accurately and with less fatigue than ever in his life before. During busy sessions, or when short of help, he has worked for some weeks at a time from 7 a.m. to 11 p.m. and he reports that he felt less tired at night after he was through than he did in the morning when he started. Previously, although he had done more work than any other man in the office it always tired him very much. He also noticed an improvement in his temper. Having been so long in the office and knowing so much more about the business than his fellow employees, he was frequently appealed to for advice. These interruptions, before his sight became normal, were very annoying to him and often caused him to lose his temper. Afterwards, however, they caused him no irritation whatever. In the case of another patient whose story follows, symptoms of insanity were relieved when the vision became normal.

From all these facts it will be seen that the problems of vision are far more intimately associated with the problems of education than we had supposed, and that they can by no means be solved by putting concave or convex, or astigmatic lenses before the eyes of the children.

The doctor's story as described by Dr. Bates.—One of the most striking cases of the relation of mind to vision that ever came to my attention was that of a physician whose mental troubles, at one time so serious that they suggested to him the idea that he might be going insane, were completely relieved when his sight became normal. He had been seen by many eye and nerve specialists before he came to me and consulted me at last, not because he had any faith in my methods, but because nothing else seemed to be left for him to do. He brought with him quite a collection of glasses prescribed by different gentlemen, no two of them being alike. He had worn glasses, he told me, for many months at a time without benefit, and then he had left them off and had been apparently no worse. Outdoor life had also failed to help him. On the advice of some prominent neurologists he had even given up his practice for a couple of years to spend the time upon a ranch, but the vacation had done him no good.

I examined his eyes and found no organic defects and no error of refraction. Yet his vision with each eye was only three-fourths of the normal, and he suffered from double vision and all sorts of unpleasant symptoms. He used to see people standing on their heads, and little devils

dancing on the tops of the high bulidings. He also had other illusions too numerous to mention in a short paper. At night his sight was so bad that he had difficulty in finding his way about, and when walking along a country road he believed that he saw better when he turned his eyes far to one side and viewed the road with the side of the retina instead of with the center. At variable intervals, without warning and without loss of consciousness, he had attacks of blindness. These caused him great uneasiness, for he was a surgeon with a large and lucrative practice, and he feared that he might have an attack while operating.

His memory was very poor. He could not remember the color of the eyes of any member of his family, although he had seen all of them daily for two years. Neither could he recall the color of his house, the number of rooms on the different floors, or other details. The faces and names of patients and friends, he recalled with difficulty, or not at all.

His treatment proved to be very difficult, chiefly because he had an infinite number of erroneous ideas about physiological optics in general and his own case in particular, and insisted that all these should be discussed; while these discussions were going on he received no benefit. Every day for hours at a time over a long period he talked and argued. Never have I met a person whose logic was so wonderful, so apparently unanswerable, and yet so utterly wrong.

His eccentric fixation was of such a high degree that when he looked at a point forty-five degrees to one side at the big 'C' on the Snellen test card, he saw the letter just as black as when he looked directly at it. The strain to do this was terrific, and produced much astigmatism; but the patient was unconscious of it, and could not be convinced that there was anything abnormal in the symptom.

If he saw the letter at all, he argued, he must see it as black as it really was, because he was not colour blind. Finally he became able to look away from one of the smaller letters on the card and see it worse than when he looked directly at it. It took eight or nine months to accomplish this, but when it had been done the patient said that it seemed as if a great burden had been lifted from his mind. He experienced a wonderful feeling of rest and relaxation throughout his whole body.

When asked to remember black with his eyes closed and covered he said he could not do so, and he saw every colour but the black which one ought normally to see when the optic nerve is not subject to the stimulus of light. He had, however, been an enthusiastic football player at college and he found at last that he could remember a black football. I asked him to imagine that this football had been thrown into the sea and that it was being carried outward by the tide, becoming constantly smaller but not less black. This he was able to do, and the strain floated with the football, until, by the time the latter had been reduced to the size of a period in a newspaper, the strain was entirely gone. The relief continued as long as he remembered the black spot, but as he could not remember it all the time, I suggested another method of gaining permanent relief. This was to make his sight voluntarily worse, a plan against which he protested with considerable emphasis.

"Good heavens!" he said, "is not my sight bad enough without making it worse?"

After a week of argument, however, he consented to try the method, and the result was extremely satisfactory. After he had learned to see two or more lights where there was only one, by straining to see a point above the light while still trying to see the light as well as when looking directly at it, he became able to avoid the unconscious strain that had produced his double and multiple vision and was not troubled by these superfluous images any more. In a similar manner other illusions were prevented.

One of the last illusions to disappear was his belief that an effort was required to remember black. His logic on this point was overwhelming, but after many demonstrations he was convinced that no effort was required to let go, and when he realized this, both his vision and his mental condition immediately improved.

He finally became able to read 20/10 or more, and although more than fifty-five years of age, he also read diamond type at from six to twenty four inches. His night-blindness was relieved, his attacks of day-blindness ceased, and he told me the colour of the eyes of his wife and children. One day he said to me:

"Doctor," I thank you for what you have done for my sight; but no words can express the gratitude I feel for what you have done for my mind."

Some years later he called with his heart full of gratitude, because there had been no relapse.

Health and its Relative Adjustment to Laws of Nature*

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Morvi.

LIFE is a series of adjustments. This is one of the greatest, most important, most far-reaching facts in human existence. The laws of Nature function all about us and we cannot change them. Hence to be in harmony with them, we must adjust ourselves to them! Happiness and success depend upon the power and the will of the race and the individual to adopt themselves to their environment. Nature's laws do not change, we must adopt ourselves to them if they are to serve us. Electricity, steam, are the same as they were a thousand years ago, it is man who has changed his relations to them so that they serve him.

The subject is so large that I shall limit myself to a consideration of its relation to the medical profession. The doctor's chief task is, to guide his patient in the process of adjusting himself to the laws that govern health. The priest is seeking the same object in the moral and spiritual field, the scientist labours to the same end of increasing human happiness, by discovering and using the laws of the physical world, and the legal profession has the task of bringing into play the organized forces of society to compel adjustment where voluntary effort has clashed and failed.

The problem of the medical profession.—Perhaps no group of men faces such a multifarious problem in this respect as the medical profession. The doctor, especially the family physician, has not only to solve his patients' problems and act as guide, philosopher and friend, but he has his own peculiar problems of adapting himself to his environment. In the

* Specially contributed to THE ANTISEPTIC

doctor's relation to the patient, there is room for a much larger sphere of action than the mere material duty of administering medicines and performing operations. The mental guidance, the influence he can exert upon the patient's attitude towards his illness, sufferings, invalidism, or even death often constitute the most important part of the service he can render him. We all know how much the patient's mental state may work in favour of or militate against his recovery. This is true in acute diseases but, perhaps, even more so in chronic or incurable cases. The chronic invalid would often be aided by putting the facts before him in brief and simple form such as he could understand. Write down for him to reflect upon a set of short statements something like the following:—

- (1) Health, good or bad, has a cause.
- (2) The cause of good health is, obedience to law.
- (3) The cause of bad health is, broken law.
- (4) Some of the causes are beyond our reach.
- (5) Most of them are within our control.
- (6) Learn, what the latter are—food, exercise, hygiene, work.
- (7) Food is by far the most important and is under our control.
- (8) Study foods and observe their effects.
- (9) The laws of health are comparatively simple.
- (10) Nature's power of repair is great, almost unlimited, if she is given a fair chance.

What we say to a patient is soon forgotten, but if he has something written down to reflect upon during his long hours of idleness it is much more likely to bear fruit.

The untrained mind is almost sure to get a wrong perspective. He will regard some trifling thing as important, and neglect what is really important. He wants a panacea. He does not take readily to the simple, plain fact that self control and obedience to law are needed and that there is no substitute for them. He would rather take something out of a bottle. Here is, where he needs moral support and guidance. He is so used to evading the penalties of man-made laws, that he is slow to believe that he cannot do the same with Nature's penalties.

AFTER PASSING MIDDLE LIFE:—Most men need help in adjusting themselves to the changed conditions after passing middle life. A large proportion of people do not enjoy the health they ought to after fifty. They imagine this to be inevitable, but if they know how to adapt themselves to the conditions, good health would be just as usual as in earlier life. They face certain facts that cannot be sidestepped. The bodily functions are less active, elimination of waste is slower, less food is required, and more care in the selection of food is necessary. With proper attention to these facts, just as good health may be enjoyed after fifty as before. The man who lives normally should have his best twenty years at from fifty to seventy.

EATING TO LIVE COMFORTABLY:—Of all the bodily habits, that of eating is the most important, quantity coming first and quality next. After middle life, the average man requires only about two-thirds as much food as the growing boy, and after seventy, only about one-half. If more food is taken than the system needs, a few exceptional individuals can dispose off the excess without special harm, but, for most people, the surplus becomes a source of disease. The organs of elimination are over-worked and disease of the kidneys or liver may result, or else the general

system suffers from the retention of wastes, producing hardening of the arteries, high blood pressure, apoplexy, or prostatic disease. Even such infectious conditions as rheumatism or heart disease are more apt to develop in a system that is overfed. Temperance in eating is wise at any time of life. After middle life, it becomes the arbiter between health and disease, between long life and premature death.

Deciding upon the proper quantity of food is largely an individual matter. Intelligent observation of effects will enable any one to fix upon the amount of food that he needs. Then it becomes an affair of self-control. The doctor often hears this confession: "I know I eat too much but I simply cannot resist the temptation." Of course there is but one answer to this. "If you want health, you must pay the price. There is no royal road to self-control. The way to control is, to control, exercise the will and it grows stronger."

It is really a good thing that nature never remits her penalties. She says inexorably "obey or suffer". It would be well if human justice would take an example from Nature. Crime would be less common, if its punishment were as certain as are the penalties of Nature.

The best way to avoid overfeeding is for most people to reduce the number of meals. Two meals a day are quite enough for the proper nutrition of the body after middle life. The objection urged against the plan is, that one suffers from hunger and then eats too much. However, the unusual hunger soon disappears. As for eating too much, is it not better to face that temptation twice or once a day than three times? These trials are more than compensated for by the increased enjoyment of food and by the greater mental clearness and vigor. One often hears middle-aged men remark that they wish food tasted as good as in boyhood. That remark never comes from a two-mealer. Those who adopt the plan seldom abandon it.

In regard to the quality of food, two things are to be considered, namely, digestibility and nutrition. The former is largely an individual matter. The doctor can lay down general principles but the patient must also observe for himself. One person can digest food that would be impossible for another. As to nutritional requirements, the food should be chemically adapted to the body needs, and especially should it contain the necessary vitamins. Here the individual cannot judge for himself, but must depend largely upon the help that science can give him.

THE CHRONIC INVALID.—In chronic or hopeless invalidism, the discouragement of the patient is often extreme. Here the doctor can help to bring him into a different attitude by pointing out the folly of tearing at the bars like a caged animal. What cannot be cured must be endured. Courage renders our ills more bearable. Even death can be faced with equanimity. What is the use of facing it any other way?

The doctor or anybody else, who is trying to teach people the wisdom of adjustment, must be prepared for much wasted effort. The human animal is sometimes very balky when it comes to having his conduct prescribed for him. Even when suffering the consequences of his own folly, he may refuse to adopt the only course that can help him. He wants something done for him, not realising that he must do something for himself. And yet, he will often give more trust to his doctor than to any one else.

While we expect much wasted effort on our part, we should nevertheless sow, hoping sometime to reap.

Cases and Comments

An Interesting Case of Foreign Body in the Nose

M. C. RAMA AYYANGAR, B.A., M.B., D.S.,
Civil Assistant Surgeon, Manantoddy.

ONE evening at about 5 p.m. a middle aged, decently attired man walked into the consulting room of the Government Hospital, with a small half-ounce bottle in his hand and said that he was coming from a place called Korome which was 16 miles from the hospital, that a leech had got into the nose of the child of one of his coolies about a month back, that it was still inside the nose and that he needed some medicine for that. Probably he wanted some drug for external application that would scare away the leech from its hiding and feeding place. Though I could not imagine a leech remaining within the nose for a month, yet as nothing definite could be said or done without proper investigation and as I could not send him back with some 'Placebo' bottled up for that ailment, I asked him to send the child to the hospital for treatment. But I least expected that it would ever come to pass.

Next morning at about 11 a.m., much to my surprise, there came the Paniya child, aged about 5 years, riding on the shoulders of his father, who was followed by his faithful wife. These Paniyas belong to the aboriginal tribes of Wynaad; they look with awe and fear and get bewildered at what we call civilisation and are noted for their backwardness and primitive conditions of life; they have immense faith only in the quacks who infest their place as much as the mosquitoes, and hence would eschew the hospital till the last minute. My astonishment grew all the more when I was told they had come all the sixteen miles walking and there are no other modes of transport in this hilly malarial tract. The father said that a month back—this duration may not be exact as their ideas of time and place are still as primitive as of most other things and almost all of them even do not know their age—when the child was bathing in a pond infested with leeches, a leech was seen by other children to fall on his head from the vessel containing the water of the pond and slip conveniently into his nose and that ever since it had not come out. Uncredulously I pooh-poohed the statement and laughed at his words. But luckily, as will be shown later, I took care to take the child to the "operation room," where I examined the nose through a nasal speculum. I saw some blood clots in the vestibule of the right nasal cavity but I could not see any foreign body though I strained my eyes.

Next, however, I put into the right nasal cavity the angular nasal forceps and pushed it inside as far as it could go and ransacked the whole of the cavity, though blindly, and pulled the forceps out. I was only glad to note that nothing had been caught; for this only went to prove that my surmise was correct. I again laughed at the idea of a leech sticking on for a month to the walls of nasal cavity—I simply could not imagine such a thing. But something urged in me to have a go at it again; probably it was the trouble that the parents had taken to come to the hospital. This time it proved to be fortunate for the child. For by that second blind poke I extracted out a live leech sluggishly wriggling between the forceps blades; it was $1\frac{1}{2}$ inches long and of the thickness of a match stick and drunk

deep to the point of intoxication with the blood of the child already impoverished by malnutrition and systemic diseases. I was glad to note that after all the trouble that the parents had taken, though belated, was not in vain; this feat of mine, moreover I thought, would put in some confidence in their minds about our ability. Then I plugged the nostril with a little cotton wool soaked in Adrenaline and sent them away. The parents had to trod on another 16 miles before they could reach back their abode at dusk. And I returned home a wiser man having learnt once again not to prejudge statements of even the most backward and illiterate of people but to view things unbiassed and without preconceived notions.

(With the kind permission of the Surgeon-General with the Government of Madras.)

A Case Note on Malignant Malaria

DR. JYOTISH CHANDRA SINGHA,
Baharpeta Clinic, P.O. Raghunathbari, Midnapore.

WE, the medical practitioners, who have decided to settle down in villages and rural parts often come across many cases not easy to diagnose mainly on clinical basis. As the laboratory help is not possible in most instances, often these undiagnosed cases, especially the specific ones, end fatally, not being properly retorted at their onset. In this connection only a brief note on malignant malaria has been given below just to draw the attention of our brethren, especially those practising in rural areas, to the unnatural manifestation of the disease.

On 29-8-'45 I was called to see a patient, a boy of seven, having been attacked with convulsion. In my absence, some doctor of this locality attended the case first. I saw the patient at 10 a.m. on that day, in an unconscious state with repeated convulsions, but no lock-jaw was present. Pupils of both the eyes were dilated. Temperature 96°F , cold at the extremities. Pulse 120 per minute. Respiration 32 per minute. On examination I found no characteristic organic disorder of the heart and lungs, except the increased rate of pulse and respiration, which was most probably due to the effect of the violent muscular exercise of the frequent convulsive seizures, or it might entirely be of central origin as it was noticed clearly that the brain was not in order at all. Also there was no notable disorder regarding the gastro-intestinal functions. Spleen not palpable; liver a bit enlarged below costal margin.

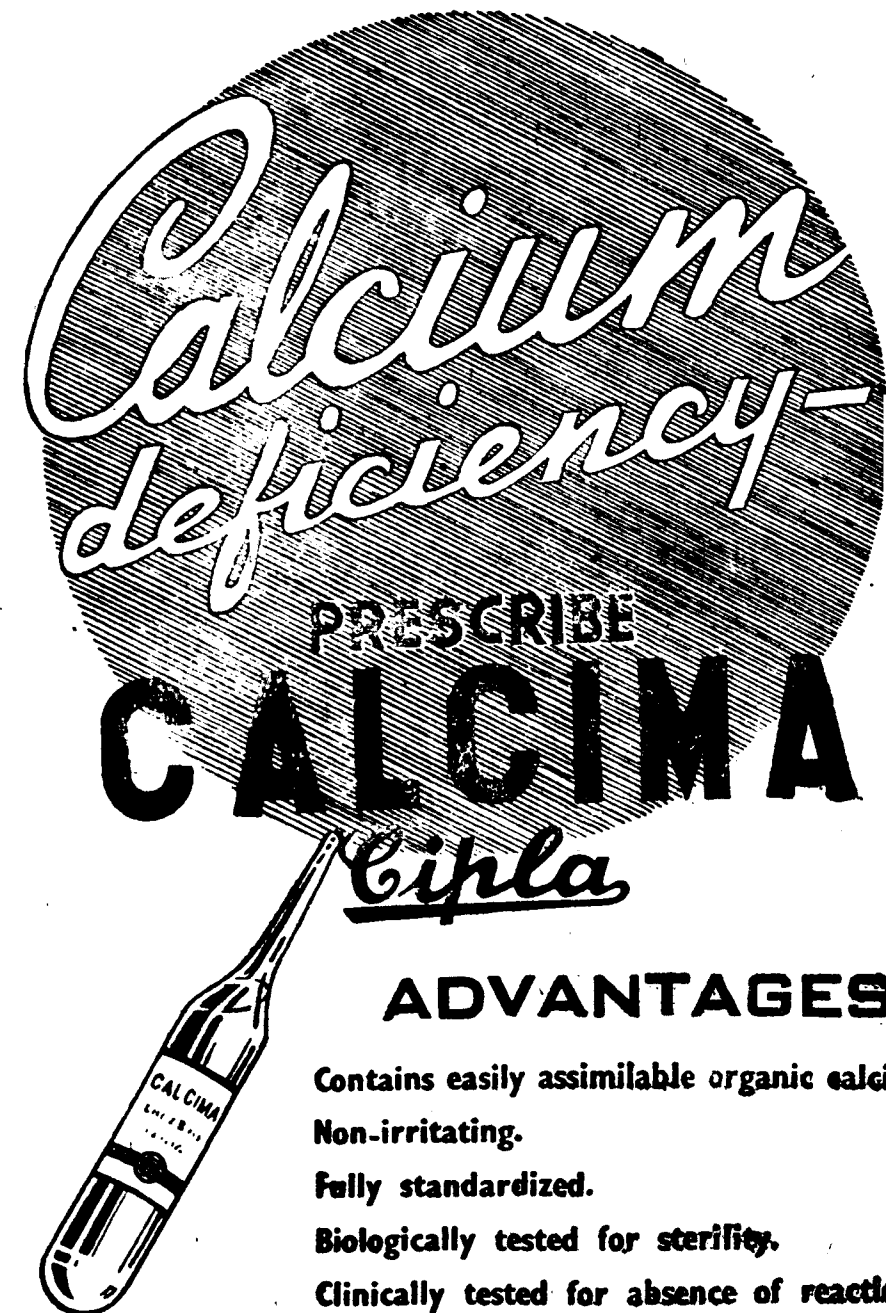
On enquiry it was reported that about two months back he suffered for nearly a month from enteric fever. Since then he was alright. Two days back, i.e. just forty-eight hours before this sudden attack, the boy got a mild diarrhoea, with two watery motions and slight rise of temperature, which did not affect seriously but persisted for twenty-four hours and subsided without any medical help. On further enquiry I came to know that the temperature dropped down with a slight sweating. After that he was well for the next twenty-four hours and in that morning he suddenly became unconscious with recurrent convulsions lasting about three or four minutes and recurred every tenth or fifteenth minute. The quack, who attended the case first, diagnosed it to be a simple infantile convulsion and pushed $\frac{1}{2}$ c.c. of Pituitrin subcutaneously, in my absence.

First I too consulted that local doctor and thought it to be a case of infantile convulsion of obscure origin. But the nature of the pyrexia, which affected him just twenty-four hours back and which dropped down with sweating, gave me a clue to come to the conclusion that it would be a case of malaria, "Plasmodium Falliparum" being the causative factor. Most of the parasites were still within the red blood cells, which being affected with the parasites blocked the five capillaries of brain and meninges, causing all the concomitant effects on the organ supplied by such capillaries. The only point against it was that the patient was in apyrexial condition. It might be due to the fact that a sufficient number of red blood cells were not still broken down as a result, there was not in the circulation a good quantity of metabolic waste products of the parasites from the broken down infected cells to cause another bout of fever.

Having been settled down with the idea of pernicious malaria, I commenced my treatment with an intramuscular injection of Quinine-bi-Hydrochlor gr. $7\frac{1}{2}$ in $1\frac{1}{2}$ c.c. at 10-30 a.m. on that day. The general measures were continued, rectal use of Glucose solution with Sodibicarb, associated with other symptomatic treatment. As ice was not available cold water was used over the head all along. At 5 p.m. it was reported that the convulsion had stopped altogether though the boy was still in an unconscious state as before.

On 30-8-'45 I was again sent for and visited the patient at 8 a.m. On examination I found no improvement, he was rather in a restless condition; though the convulsion had ceased he was still in unconscious state and the brain was not cleared at all and to my utmost surprise, I noticed his temperature, which went upto 104°F . On enquiry, I came to know that the bout of fever commenced from that morning, with a slight rigor. I at once injected him again Quinine-bi-Hydrochlor gr. $7\frac{1}{2}$ in $1\frac{1}{2}$ c.c. intramuscularly and advised his parents to sponge his whole body with cold water repeatedly till the height of fever would come down by some degree. At 5 p.m. on that day again I visited the patient, when his temperature came down to 102°F . and he was speaking incoherently and it appeared to me to be in a better condition comparatively. However this time too I again pushed Quinine-bi-Hydrochlor gr. 5 in 1 c.c. mixed with 10 c.c. of Glucose solution of 12½% intramuscularly with the idea of retaining the alkaloid a longer period into the circulation, as it would require a longer period for complete absorption of the bulky fluid.

On 31-8-45 I visited the patient at 8 a.m., when he was nearly all right as it appeared to me. The boy could answer properly and was in a position to take food and medicine. There was no fever and nothing untoward was found. I prescribed oral administration of Quinine 15 gr. daily for the next three days and an Alkaline mixture, which resulted in complete recovery.



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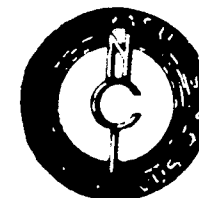
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Clinical Malaria

(A Case report)

E. MANUAL, L.M.P., (AGRA)

Medical Officer In-charge, C.M.S. Estate Hospital,
Clarkabad, District, Lahore.

In submitting this case report for publication in the *Antiseptic*, I wish to lay stress on a few salient clinical points of paramount importance which will be found worth caring for when a case of atypical fever comes for treatment. Before I take up the intended points, the following few general remarks, I am sure, will not be out of the place. In doing so, I crave the pardon of the profession for my audacity in expatiating on certain axioms, and do hope that the same will not arraign me.

Sine-dubio :—It is an obvious truism, that having all the latest and possible resources at our disposal for diagnostic purposes in the modern system of medical science, that a real diagnosis of fever is arrived at within the first 48 hours of the advent of fever. Most of us, I am afraid to say, beat about the bush and grope in search for the cause of fever when a case of atypical fever comes in for treatment. In this way most of the time is lost in starting the treatment, which otherwise would have benefited the patient. Failing to arrive at a definite decision in a short time, we in a bustle start giving the patient this or that, with ultimate results that either the patient has to tip over the perch, or he falls an easy prey in the hands of mountebanks, where he incidentally gets better by some ordinary treatment, and we woefully fall into attrition to hear that the patient is going about recovered. It is all well for the big institutions and well established hospitals to adhere to the routine examination of blood, urine, stools, etc., and keep the ailing patient under observation in the M.I. Room, so long as the diagnosis is not established. But even there too, it is seen that cases remain undiagnosed for a good length of time. In rural dispensaries and in rural private practice, where there are no means of carrying on the routine tests, and where the patient cannot afford to remain ill for more than a few days, it would be of advantage to take short cuts to treat the case.

No doubt, microscopic examination of blood films is always very helpful, and where a microscope is available it does not take much time to examine a slide. But where there is no microscope at hand, and where the clinical laboratories are far away, time should not be lost in starting the treatment. However, if the attending physician is very particular for getting the blood test done, the blood should be taken on arrival of the patient, and the necessary symptomatic treatment started at once. The following few clinical points referred to above will be worthwhile bearing in mind while treating a case of atypical fever :—

(1) *Preliminary interrogation* :—(a) Chief complaints; (b) past history; (c) family history; and (d) place of residence.

(2) Physical examination.

Case note.—On July, 1, 1946, I was called upon to attend on a lady, aged about 71 years. She complained of fever, restlessness, headache and constipation. The duration of illness was only two days.

Chief complaints.—Fever, restlessness, headache and constipation.

(598)

Past history.—The patient had an attack of lumbago on the 18th, of June, 1946. The attack lasted for over a week, and the patient got well after having had treatment from me. Before this time, i.e., for the last 30 years, the patient never took to bed with any kind of disease.

Family history.—Nothing special to note.

Place of residence.—The patient is living in Clarkabad for the last 30 years, malaria being endemic in Clarkabad.

Physical examination.—The patient was of average height and weight and appeared to be of good disposition. Despite the fact that the patient had fever and other symptoms, she looked very cheerful and happy. Temperature was taken in the mouth and it was 101°F. The surface of the body felt cold and moist. Eyes were slightly congested.

Alimentary system.—Tongue showed a peculiar appearance. It was dry and slightly coated in the centre. The tip including the margins showed pigmentation which was bluish black in colour. Patient had no signs of cynosis. Breath was foul.

Bowels.—On palpating the abdomen the patient felt pain in both the iliac fossæ, which was due to constipation. Cutaneous sensations of the abdomen were normal.

Spleen.—Just palpable below the left costal margin.

Liver.—Normal.

Respiratory system.—**Lungs.**—A few rhonchi were heard behind at both the lung bases. Respiratory rate was 20 per minute.

Circulatory system.—**Heart normal.**—Pulse rate 72 p.m., soft and full.

Examination of blood.—No malarial parasites were found in the blood. Differential count was as follows:—

Poymorphs	...	60%
Lympho	...	36%
Mono	...	4%
Eosin	...	0%

Widal test was intentionally omitted as it is of value only in the second week of fever. Morris Atrophine test was negative.

Nervous system.—The patient complained of severe headache, and showed fear of impending death at times. Otherwise normal.

Urinary system.—Urine as it is generally seen in high fever cases, was in this particular case of faint pale colour, and of the specific gravity of 1010, and measured from 7 p.m. to 7 a.m. Free from albumen and sugar.

Treatment.—Absolute rest in bed. The patient was put on milk diet, plenty of fresh lemon and barley water was allowed. The bowels were opened with soap and cold water enema. The result was good. Patient passed a few dry scyballous masses, which were stony hard. Mist. Pot. Cit. ounce one every 4 hours, and 4 hourly temperature chart were ordered. At 2 p.m. temperature shot up to 105°F. and the patient felt severe headache and began to talk incoherently. Ice cap to the head and sponging of the body was done. This brought down the temperature to 102°F. but after 5 minutes the temperature went up to 105°F. again, when an A.P.C. was given. At 6 p.m. temperature dropped to 99°F. and the patient felt relief from headache and restlessness. She had quite a restful night.

On July 2nd '46, at 6 a.m., temperature was 103°F. with repetition of the symptoms. The pulse and respiration remained unchanged. Quinine Bi-Hydrochlor grs. 10 with Sacchrose I.M. was given at 7 a.m. and Mist. Pot. Cit. hourly was continued. Temperature came down to 102°F. at

6 p.m. Patient was restless during the day and could not sleep. This probably might have been due to the excessive heat and humidity of atmosphere on that day.

On the morning of 3rd July '46, temperature was 100.4°F. when another 10 grs of Quinine bi-Hydrochlor, with Saccharose I.M. was given.

By 10 a.m. the temperature went up to 102°F. Soap and cold water enema was given at this stage as the patient complained of some gas in the abdomen. This gave relief to the patient and she felt more comfortable. Temperature at 6 p.m. came down to 101.2°F. The patient complained of severe headache, pain in the epigastric region and vomited twice. The vomited matter was of deep yellow colour and of bitter taste. The pain in the epigastric region decreased after the vomit. No change in the pulse and respiration was noticed up till now. For the headache I gave her Ammonium Chloride Grs. 10 in an ounce of Chloroform water, and this relieved the patient of her headache after 20 minutes.

On the morning of 4th July '46, the temperature was 102°F. The patient complained of ringing in the ears and nausea. Mist. Pot. Cit. was continued. 5 grains of Q. bi-Hydrochlor with Saccharose was administered by I.M. route. Fluids were given freely.

On July 5th, '46, the temperature came down to 100°F. Injection of Q. bi-Hydrochlor with Saccharose I.M. was repeated, and the rest of the treatment was carried on as before. There was some rise of temperature after the injection. But the patient felt better than before and slept for about 2 hours during the day. At about 6 p.m. the patient began gasping and threw her arms and legs about. This was a clear indication for stopping or suspending Quinine treatment. Glucose with Saline was given by the I.V. route. After half an hour the symptoms abated, and the patient began to feel better. Mist. Pot. Cit. was stopped and Glucose D was given instead 3 hourly. The patient had a restful night and slept better than before. On the morning of 6th, July '46 at 6 a.m. the temperature came down to 99°F. I could not dare to give the patient any more of Quinine injection, and neither the patient was inclined to have it. I gave her grs. 5 of Quinine Sulph. by mouth. In the afternoon the patient had a slight rise of temperature, but felt much better than before and looked very cheerful. Glucose D was continued.

The temperature touched normal at 7 a.m. on July, 7th, '46. The patient and her relatives were in felicitious mood, and reported to me that the patient had a very good night. The patient felt hungry, and asked me if she can have some *chapati* and roasted meat. She was reluctant to have any more of the liquid diet, so I allowed her to take some *khichri*. Temperature at 2 p.m. increased a bit and rose up to 99°F. It kept this level till at 6 p.m. It again came down to 98°F, and kept normal thereafter.

The patient was advised a change to some hill station, and was ordered to have Easton Syrup b.d. after meals.

Points of interest.—(1) The surface temperature of the body remaining constantly cold throughout the entire course of fever.

(2) Slow pulse rate.

(3) Peculiar pigmentation of the tongue.

(4) Colour and specific gravity of urine.

Acknowledgment.—I am very grateful to Dr. Miss F.G. Ditta, for her kindness in going through this article with me, and helping me in arranging certain points.

An Unusual Persistent Secondary Post-partum Hæmorrhage, treated by Hæmostatic Viper Venom

MAHADEV CHOWDHRY, M.B.,

Chief Medical Officer, Pat-lahara Post, Sambalpur, Orissa.

A lady aged 23 H.F. came to me for huge uterine bleeding after 10 days of her delivery.

Previous history.—This was the 4th pregnancy, other pregnancies had terminated in abortion between the 4th and the 5th months. The patient became anæmic after the conception and began to swell at the beginning of the 3rd month and by the 4th and the 5th month her whole body became œdematous. Then abortion took place and she recovered, and this happened in all the previous three pregnancies.

Present history.—In this pregnancy she was seen by me in the 4th month while she was fully œdematous. Her urine was free from albumen and the percentage of Hb was 46. She was put on Livibron, Plastules with Liver Extract, and injection Liver Extract with some diuretic mixture.

Percentage of Hb rose upto 64 and the swelling partly subsided. At the beginning of the 10 month one night she did not feel any movements of the child.

Next morning at 11 a.m., she was seen by a lady doctor who manually delivered the two dead twins after giving an injection of Pitocin, as there was uterine inertia.

Placenta came out $\frac{1}{2}$ hour after the 2nd stage of labour. Then she was put on P. P. mixture, Glucose, and other Iron tonics. She was getting on well. But after 10 days she felt pain in the lower abdomen at night and blood was coming out from vagina in large amount.

She was given hot vaginal douche and a huge blood clot came out with the remaining membranes. An injection of Ergotamine Citras and Ergot mixture and Quinine were given. She was plugged then.

In the afternoon blood was trickling through the bandage. It was removed and after douching with hot Glycerine she was again given an injection of Ergot and Calcium Gluconate and tight plugging was done.

Next morning her condition became very precarious and Hb percentage was 35. So Saline and I.V. Glucose were given and the previous procedure was repeated with the addition of Hæmostatic serum. In the afternoon no improvement was seen. The plugging was not removed and she was tried with vitamin C and vitamin K injections.

Next morning as the bleeding was continuing an injection of Hæmostatic Viper Venom (Venostat), douching of the uterus with hot Glycerine, thorough plugging and tight bandaging were done with P.P. mixture and Cal. Gluconate injection.

In the afternoon no more bleeding took place and another injection of Hæ. Viper Venom and Cal. Gluconate I.V. given. No further bleeding took place and two more injections of the Venom were given. She is progressing well with Plastules with Liver Extract, Lirimim tabs. and injection of Neo-Livocan.

Summary.—Persistent Sec. P.P.H. responded nicely to hæ. viper venom when other routine methods failed.

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Serum-Level of Penicillin

K. D. LAHIRI, M.B., B.S.,

Senior Hony. M. O., V. D., Medical College Hospital, Patna.

THE success with Penicillin therapy depends in venereal practice on maintaining a continuous serum-level for a certain length of time. Extensive laboratory experiments and clinical trials have convinced the specialists in V. D. an approximate period for which the serum-level in V. D. patients should be maintained, as follows:—

(1) For chancroidal infection without any complication—12 to 18 hours is sufficient, but when any complications like bubo or phagidena are present it is necessary to give Penicillin-therapy for 48 to 72 hours (LAHIRI, 1945, LAHIRI, 1946).

(2) For early syphilis the maintenance of serum-level of Penicillin is essential for 7½ days (MOORE ET AL, 1944). In late, latent and neuro-syphilis 7 to 10 days period is advocated (O'LEARY ET AL, 1946).

(3) In gonorrhoea—one day serum-level is advocated in acute stage (LAHIRI, 1945), and in chronic cases 36 to 42 hours serum-level is needed (LAHIRI, 1946). In cases of gonorrhoeal arthritis 48 to 72 hours serum-level has been found to be quite sufficient (LAHIRI, 1946).

(4) In gangrenous balanitis—both local and systematic, Penicillin should be maintained for a period of 24 to 48 hours (LAHIRI, 1946).

(5) In granuloma inguinal-Penicillin serum level may have to be maintained for a period of 7½ days.

(6) In lymphogranuloma inguinale for 7½ days.

(7) In yaws serum-level is maintained for a period of 5 to 6 days (WHITEHILL and AUSTRIAN, 1945).

The use of Penicillin in rarer venereal diseases has yet to be worked out by V. D. specialists.

Coordinate laboratory experiments and numerous clinical trials are necessary under control and expert supervision to come to a proper conclusion regarding required serum-level of Penicillin in treating particular V. D. in India.

It has been found that during continuous intravenous or intramuscular therapy with Penicillin fairly constant Penicillin serum-levels are maintained, but the serum-level may be different in different patients with the same amount of Penicillin given by the same route and at equal intervals. ORY ET AL (1945) have found out the following after the administration of 15,000 units of Penicillin intramuscularly every two hours and found that the serum-levels were 0.22, 0.22, 0.11 and 0.06 units per c.c. at intervals of 1/4, 1/2, 1 and 2 hours respectively following the injections.

The sustained minimum serum-level of 0.012 unit per c.c. has been found effective against a range of organisms including gonococci (LOEWE ET AL, 1945). Concentration of Penicillin in the serum of 0.078 unit per c.c. is the minimal effective level for the destruction of spirochæte (DERMOTH ET AL, 1945). Intramuscular or intravenous injections repeated at intervals of 2 to 3 hours maintains a definitely demonstrable level of Penicillin in blood (ALLAN, 1946).

For a healthy adult in India suffering from any V. D. 50,000 units of Penicillin intramuscularly every three hours has been found to maintain the required serum-level to be effective (LAHIRI, 1946).

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Hæmoglobinuria and Vitex Pedunculosis

(A Case Report)

CH. SUBBARAYA SASTRI, L.I.M. (RMD.),
Samalkot, East Godavari District.

Patient, C.S.N., H., 65, m., got an attack of influenza (prevalent in the locality) on 8-10-'45 and he was cured completely by 12-10-'45. He was given light diet and was alright for a day. He was only given influenza mixtures during the attack and no Quinine preparation was administered.

On the next day, 13-10-'45, he again complained of passing blood-red urine with burning sensation and in small quantities frequently. He was very weak. No care was taken to examine the urine and the asthenia explained as characteristic of influenza—the post influenzal asthenia.

On 14-10-'45 the patient was found prostrated, passing blood-red urine in small quantity and at every 20-30 minutes interval. Only alkaline mixture was given and diet restricted to fluids and Glucose.

On 15-10-'45 patient was very bad and prostrated, developed signs and symptoms of toxæmia and anoxia. The temp. was 100°F. Skin was slightly tinted yellow and complained of griping and passing loose motions.

Urine.—Scanty (oliguria) $\frac{1}{2}$ –1 oz. in quantity, blood-red in colour with heavy deposits and was passing urine every 15 minutes. On addition of Sod. Bicarb it effervesced.

Blood was not examined for malarial parasites as there were no facilities.

All the above symptoms, viz., oliguria, the colour of the urine with heavy deposits, the slight jaundiced tint of the skin, the rise of temp., extreme prostration with mental confusion and signs and symptoms of toxæmia and anoxia were suggestive of rapid hæmolysis and free hæmoglobin in the blood (hæmoglobinæmia) and consequent hæmoglobinuria.

TREATMENT.—11-30 a.m. Vitex Pedunculosis ("Pedunculine") 3 c.c. I/M.
1-0 p.m. Glucose 25% 10 c.c. I/V.
6-0 p.m. Vitex Pedunculosis 3 c.c. I/M.
10-0 p.m. Sod. Bicarb 7.5% 10 c.c. I/V.

Orally.—Sod. Bicarb was given with Glucose.

Diet.—Barley water and fruit juice with plenty of Glucose.

By 8-0 p.m. the colour of the urine improved.

16-10-'45. General condition much improved. Temp. 99°F.

Urine.—Rose colour, and quantity slightly increased, about 1 oz. each time but at 15-20 minutes intervals.

TREATMENT.—9-30 a.m. "Pedunculine" 3 c.c. I/M.
1-30 p.m. Glucose 25% 10 c.c. I/V.
4-30 p.m. Sod. Bicarb 7.5% 10 c.c. I/V.
Sod. Bicarb and Glucose were given orally.

Diet.—Barley water and fruit juice with plenty of Glucose. Urine was still effervescing on addition of Sod. Bicarb.

17-10-45. General condition much better. Temp. remained normal, no jaundiced tint of the skin; no griping and loose motions but only complained of extreme weakness.

Urine.—Colour of light rose hue and passed 2-3 oz. at half an hour intervals and still there are deposits. No effervescence on addition of Sod. Bicarb.

TREATMENT.—9 a.m. "Pedunculine" 3 c.c. I/M.
1 p.m. Glucose 25% 10 c.c. I/V.
4 p.m. "Pedunculine" 3 c.c. I/M. as the light rose colour

deepened again to rose colour.

Same Sod. bicarb and Glucose were given orally.

Diet.—Fruit juice and barley water with Glucose. Urine was quite clear by 8 p.m. There are still some deposits.

18-10-'45. Well improved. Complained of loin pains, dry tongue and weakness. Urine was quite clear without even a trace of colour and quantity also improved to 3-4 oz. at about 1 hour intervals. But there are deposits.

TREATMENT.—11 a.m. "Pedunculine" 3 c.c. I/M.
Sod. Bicarb 7.5% 10 c.c. I/V.

Same Sod. bicarb and Glucose orally. Diet still restricted to liquids.

19-10-'45. Complained of extreme weakness and loin pains.

Urine.—Normal in colour and quantity 6-8 oz. passing once every 1 hour and there are no deposits.

TREATMENT.—"Pedunculine" 3 c.c. I/M.
Sod. Bicarb and Glucose orally.

Diet.—Milk and fruit juice with Glucose.

20-10-'45. Only complained of weakness and loin pains. Urine clear with no colour and deposits and quantity also is much increased.

11 a.m. Sod. Bicarb 7.5% sol. 10 c.c. I/V.

P. D. Liver Extract (20 U.Sol.) 2 c.c. I/M.

No medicine was given orally and fruit juices with milk and Glucose were given.

21-10-'45. Again griping and loose motions with mucous made their appearance. Urine was clear and of normal quantity.

Castor oil 2 oz. given early in the morning and diet was still restricted to fruit juice, milk and Glucose.

22-10-'45. Symptoms of dysentery subsided.

No medicine was given orally. Milk and Glucose given as diet.

Later patient was given "Fersolate" tablets orally and P.D. Liver Extract (20 U.S.R.) 1 c.c. to improve the anæmic condition and weakness.

Summary.—(1) Very rare incidence of hæmoglobinuria independent of any malarial attack and Quinine medication, only suggesting that acidosis is responsible for which the cause in this particular case is unknown.

(2) And this case following an attack of influenzal fever (any how blood test was not done for malarial parasites as the patient had no

malarial attack previously and the symptoms now being definitely of classical influenza).

(3) And the specific and immediate action of Vitex Pedunculosis ("Pedunculine" 3 c.c. Gluconate Ltd.), Glucose 25% 10 c.c. and Sod. Bicarb 7.5% 10 c.c. I.V. being only supplemented.

I owe my thanks to Messrs. Oriental Mercantile Co., Ltd., Calcutta, for their kind supply of "Pedunculine" 3 c.c. amps. (Gluconate Ltd.)

A Men without Mouth

Dr. B. L. SHARMA,
C.M.O., Sitamau, (C.I.).

SOMETIME ago, in the interior of the hilly part of a district in U.P., one day a man was brought to me for treatment as he *had no mouth*. On the site of the mouth a white cicatricial line of the scar ran from one end of the orifice to the other.

He belonged to the Jangli-tribe, Kharwar, age 20, enviously robust and healthy with beautiful muscular physique. He used to explain his aim and purpose through the movements of his eyes and peculiar gestures of the hands and body, which filled those present with pity and sympathetic laughter as well.

In brief the history was that a couple of years ago he got extensive ulcerations in the mouth and on the lips. Without right and proper treatment these ulcers during the slow course of healing went on uniting the lips till eventually they were totally hermitically sealed leaving the white scarline in place of once a beautiful mouth with thin symmetrical lips.

With this cruelty Nature was merciful at the same time. Just in the centre between the upper lip and the nose a small portion about the size of a silver two anna bit, was also ulcerated and perforated and left healed and open through which he was fed for the two long years. Diluted Sattu (flour of roasted grams & maize mixed with water) used to be poured in through this opening with the aid of locally devised earthen feeding-cup.

What a wonderful vitality and digestion that the man thrived well and remained in such an excellent health on such a low diet for two long years? Had the blessed Nature made it possible any needy and affording man can easily offer a heavy purse in exchange for such a health and vitality?

Treatment.—I made an incision along the scar line and separated the two beautiful thin lips exposing the two rows of well set and symmetrical strong teeth and sound free tongue.

Who can explain the mirth and ecstasy of the man who after two years' dumbness suddenly finds himself fit to speak and express his feelings freely?

The incised wound was healing beautifully under granulations and the patient was speaking and eating freely and normally. But unfortunately on the tenth day he slipped away for his home from the hospital without any intimation to me and without my permission and since then nothing had been heard of him. Who can say how the Nature dealt with him and whether his lips were again sealed for his hasty folly or mercifully cured completely?

The small circular hole, his feeding source, was also incised marginally and sutured and closed and he was helping himself with diet through the newly made mouth.

A Case of Cerebrospinal Meningitis with Lumbar Puncture

HARIDAS, DE, L.M.F.,
Late Senior House Physician, Campbell Hospital, Medical Officer, Chatmohar,
Charitable Dispensary and Govt. Chatmohar F.R.E. Hospital, Pabna District, Bengal.

A MALE Hindu patient, cobbler (muchhi) by caste, aged about 30 years, hailing from a village in the District of Rajshahi, was found in an unconscious state on the side of the Chatmohar Railway Station in the month of July 1945. I was going to see a patient in a mofussil village near the Railway Station when I saw the man lying by the side of the road in a precarious condition. I felt pity for the unfortunate dying man and took him in my Tom Tom and got him admitted in the Chatmohar F.R.E. Hospital.

On the date of admission:—I examined him and found the patient in the following condition:

Temp—103.4°F, The patient was unconscious boisterously shoutings all the while and tossing over the bed.

Pulse—100 p.m. *Resp*—24 p.m. *Skin*—scorching hot, eyes congested and pupils dilated on both sides. There was rigidity of neck and retraction of the head a little backwards.

Liver—not palpable. *Spleen*—just palpable below the costal margin. *Bowels*—Tongue examined with great difficulty with the help of mouth gag found coated and saders on the teeth. There is tendency to vomiting.

Bowels—acutely constipated as hard faeces were palpable in the sigmoid colon.

Duration of the illness could not be ascertained as the patient could not give any answer to questions put to him.

Circulation—Pulse slow in proportion to temp. Heart sounds both week and feeble but no abnormal sounds were audible. I was rather puzzled about the correct diagnosis of the case. However as a routine treatment, I at once gave soap water enema which gave good result within a short time. Urine was passed and bladder which was distended at first became empty. As cerebral type of malaria is a common disease in this area, with the above signs and symptoms I thought it to be a case of cerebral type of malaria as the patient also had a palpable spleen. I injected him Quinine Bi-hydrochloride gr. x in 2 c.c. in Saccharose 8% (B.C. P. W.) intramuscularly in the gluteal regions and Hexamine 5 c.c. of 40% and Glucose soln. 25% 25 c.c. was injected intravenously. As the patient was still boisterous and seriously delirious, I was again called in to see the patient late at night when I gave him Hyoscine Hydrobromide 1/100 grain intramuscularly. No medicine could be given by mouth as the patient was very restless and fully unconscious. Next morning when I saw the patient I found him no better, moreover he went downhill. His typical posture of lying in bed with retraction of both the knees attracted my attention when I again examined him and found retraction and rigidity of neck more marked. Kernig's sign positive on both the sides, Brudzink's sign also was found positive and Babinski's sign, i.e., all signs and symptoms of cerebro-spinal meningitis were found in him.

As lumbar puncture was out of question in this remote village where the medical practitioners are handicapped without having a microscope

or lumbar puncture instrument, so I adopted the other alternative (thanks to the chemotherapeutics that the outlook for such a deadly disease has become very bright) i.e. injected him sodium soluble of M & B 693 (I-M.) and Glucose 25% 25 c.c. and Hexamine 10 c.c. intravenously.

In the same evening the restlessness of the patient was found a little better and he was rather silent. I thought the medicine acted well, and I repeated another injection of Sodium soluble M & B 693 and bowel was again moved with soap water medicine. No medicine was given orally this day also.

Next morning the man woke up with bright face and the temp. came down to 99°F and the patient was fully conscious when he told me that he was attacked with fever 4 days back on his way back from Pabna to his village in Barigram P. S. in the District of Rajshahi. He had had no fever for the last six months. Only when he was returning back home, he was suddenly attacked with severe occipital headache and high fever attended with severe rigor. After that he knew nothing as he was unconscious. This day I gave him plain Alkaline mixture with Pot. Bromide gr. x and Hexamine syrup per dose and M & B 693 Tabs. 2 every 4 hours and injected Glucose soln. 25% 25 c.c. I.V. In the same evening the condition of the patient was much better, temp. did not shoot up and the patient was fully conscious.

Next day temp. came to 98.4°F. in the morning and the general condition of the patient was much better. I gave him again M & B 693 one tab., every 4 hours and Pot. Bromide Alkaline Mixture. Gradually the man improved and was cured within a few days and discharged from the hospital. I am much thankful to Mr. K. D. Kundu, Secretary of the Advisory Committee of the Hospital, for his kind permission to publish this article.

Medical Treatment in Acute Intestinal Obstruction

KISHORI LAL SACHAR, L.M.B., (C.P.),

Medical Officer in-charge Ahar, Dispensary, District Karnal (The Punjab)

LAPAROTOMY though is the only treatment for cases of acute intestinal obstruction, yet medical treatment has to be resorted to especially in rural areas where the dispensaries are not well equipped and at the same time it is not possible to persuade illiterate and poor patients or their attendants to undergo such procedure.

Here I am quoting a case of acute intestinal obstruction which seemed to require laparotomy without delay but recovered under pure medical treatment. The cause of acute intestinal obstruction seemed to be volvulus or a strangled loop of intestine.

Age 40, Hindu male, attended this dispensary on 2-7-'46 at 2 p.m. Duration 2 days, abdomen greatly distended, so much so that it caused difficulty in breathing, pain more or less persistent, thirst frequent, absolute constipation, no flatus being passed. Vomiting not frequent. Pulse 89, temperature 97.6°F. No history of such attack in the past.

Treatment.—1. Calomel gr. 1/6 every ½ hour, such 8 doses (each with grs. of Soda Bicarb).

SEPT. '46] MEDICAL TREAT. IN ACUTE INTESTINAL OBSTRUCTION—K. L. S. 603

2. Atropine gr. 1/100 every 1 hour subcutaneously. Such 2 injections one at 2 p.m. and another at 3 p.m.

3. Pituitrin 1 c.c. subcutaneously at 5 p.m.

4. Enema Soap water + 1 oz. Castor oil at 2-30 p.m. repeated at 4 p.m. and 7 p.m.

5. Water to which was added a little Soda Bicarb and Glucose to drink.

The condition remained the same, rather he passed the night in great discomfort.

3-7-'46. 1. Enema repeated at 8 a.m.

2. Calomel gr. 1/6 every ½ hour with a little quantity of Soda Bicarb, such 8 doses.

3. Atropine gr. 1/100 every 1 hour subcutaneous repeated, such 2 injections at 9 a.m. and 10 a.m.

4. Carbachol (B.D.H.) 1 c.c. at 12 p.m. subcutaneously.

5. Warmth to the abdomen.

6. Enema repeated at 1 p.m.

The condition remained the same.

The medical treatment seemed to prove hopeless to me as well as to the attendants of the patients. I then decided to make one and the last attempt in the evening. So at 6 p.m., soap water + 1 oz. Castor oil was given and Carbachol 1 c.c. subcutaneous at 7 p.m.

To our surprise the patient passed a big motion at about 2 a.m. on 4-7-46. Thereafter he passed 2 more motions and the patient began to feel comfortable.

Summary.—How Atropine, Calomel and Carbachol set the volvulus or strangled loop of intestines without manipulation one cannot well explain. However, it is gathered that Calomel acts as cholagogue and antiseptic. A small quantity of bile is poured out into the intestines. The antiseptic action of the bile as well as that of Calomel prevents decomposition and so diminishes distention. The bile also acts as a small stimulant to the intestinal musculature. The Atropine acts as an anti-spasmodic and sedative. The sedative action calms the intestines and gives a sort of rest to the over-tired part of the intestines while the antispasmodic action removes the spasm. The spasm so removed by the Atropine prepared a field for the other drugs mentioned to work for the onward passage of the intestinal contents relieving the obstruction. Before attending the dispensary the patient had a purgative from a quack who thought it a case of constipation and which aggravated the condition of the patient. The patient would have gone to another quack if laparotomy would have been insisted upon. Therefore I request the readers of the journal to try this method where laparotomy is not at hand or definitely refused.

I am highly thankful to our worthy D.M.O.H., Karnal, Dr. M. L. TALWAR, for his kind permission to send the above notes for publication.

Leptazol (Cardiazol) in Psychoneurosis

SUBODH CHANDRA SANYAL, B.Sc., M.B.,

Nator-Rajshahi.

CASES of psychoneurosis are not uncommon but the treatments are very few. As to the etiology of psychoneurosis various theories have been put forward and they all agree that the predisposition in psychoneurosis is the most important factor. People with emotional dispositions are the chief subjects in period of great stress, and the present war has produced varieties of cases both among the civilians and military. The clinical picture and classification are numerous which it is out of place to discuss here. The technique of treatment lies in the importance of parental guidance, and a lasting impression may be made by the attitude towards the patient of the physician first to attend on him. Patience is the key note of treatment.

Psychotherapy and convulsion therapy are the present day treatments in cases of psychoneurosis. Psychotherapy without the psychiatric hospital is impossible. The electrical convulsion therapy is impossible in mofussil. The next best which remains at our disposal is Leptazol (Cardiazol) therapy which may be tried by the expert hands in mofussil, as danger may follow after its administration. Recently I had the opportunity of treating a case of psychoneurosis of anæsthetic type by Cardiazol, the details of which are given below.

The patient, a female, aged 20 years, was lying unconscious for the last two days. She could not swallow even a drop of water for the last two days. Bladder and rectum did not move at all. The local doctors evacuated the bladder by catheter once in 48 hours and gave Glucose I.V. 50 c.c. On the third day of her illness I was called in and I saw the patient in the above condition. Her pulse was very low, eyes were shut and resisted attempts to open them. The eye reflex was present. The only abnormal sign which I found on examination was complete anæsthesia to pin-prick and to heavy pressure. I then started injection of Cardiazol.

The first injection 1 c.c. I.M. produced no result, then after 45 minutes followed the second injection of 1 c.c. which met with the same result, again after 45 minutes the third injection of Cardiazol 1 c.c. was given. This time the patient gave a jerk as if she felt some pain. It was about 10 o'clock in the night I left the patient's house leaving the necessary advice. Next morning I saw the patient conscious, she felt the pin-prick and heavy pressure but could not speak nor could she swallow any liquid. This time I injected Cardiazol 2 c.c. I.M. I was waiting there to see the result of the injection. After half an hour or so the patient jumped up on her bed and opened her lips and cried for water. Within an hour she appeared to be a new lady as if she knew nothing that had happened to her. Cheers followed.

From the result of Cardiazol injection in the above case, I must say that the drug produced convulsions due to sudden vasoconstriction which brought back her senses and consciousness. I hope that my colleagues will give a further trial of the drug in cases of psychoneurosis and will publish their results.

I am grateful to Mr. B. P. Dalmia of North Bengal Sugar Mill, Gopalpur, for his kind help and my hearty thanks are due to Dr. P. C. Sarkar for his assistance in this case.

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No. 9.

Public Health and Medical Relief

WHILE every move that is made by Government to give an incentive to the people to improve themselves should be welcomed as a step in the right direction by every community interested in its own advancement, it is a pity that the direction issued by the Hon. the Minister for Education in Madras to the Principals of the two professional colleges, Engineering and Medical, to reserve 20% of the seats in their colleges to applicants with merit, should have evoked such unjust and unjustifiable criticism at the hands of the members of a section of the people. As rightly observed by Mr. H. S. TOWN in the course of the debate in the Madras Legislative Assembly on the grant asked for, for the Public Health and Medical Departments, the placing of a wrong person or a less efficient person in a medical appointment would mean the risking of the life of somebody, so also the placing of such a person in a responsible position in the Engineering Department would result in considerable loss to the exchequer, besides endangering in some cases the lives of many. In order to secure really efficient men for these services, it is absolutely necessary that in making the selection for the admission of students, merit must necessarily be the guiding factor. In spite of this, those who held the reins of administration in their hands so long in this Presidency failed, and failed miserably too, to give due consideration to this all-important matter when they fixed the communal ratio in the matter of selection to these colleges, with the result that the Bore Committee which went into this aspect in connection with their enquiry found the position so gloomy that they were forced to recommend that so far as medical colleges were concerned, one third of the seats should be reserved for merit. The Minister for Education has not gone as far as that, but has directed the reservation of only 20% of the seats for merit. A question was raised in the Madras Legislative Assembly as to what this word "merit" really means. It means no more and no less than "worth," and we may also add aptitude for the study. It will do no good to anybody to put a square man in a round hole. Those who oppose this right step are doing a great disservice to the communities which they profess to represent by not only unconsciously admitting that the youth of their community are incapable of rising to the level of other communities but also placing a premium on the absence of merit by making them give up what little incentive they had, to rise to the level of others in the race for the attainment of merit.

If the arguments of the opponents of the scheme are taken to their logical conclusion, then it would follow that merit should be given the go-bye and that anybody and everybody should be given responsible positions, simply because they belonged to a particular community. A really dangerous proposition which no sane man can accept. The country has to make considerable leeway to be on a par with other nations, and this requires men of real merit who can be safely trusted to carry the country in its onward march. We therefore not only welcome the step taken by the Hon. the Minister for Education but also appeal to him with all the earnestness we can command to go ahead and give effect to the recommendations of the Bhore Committee which was composed of men of high calibre, belonging to all communities.

The position in regard to public health and medical relief is very, very unsatisfactory. Not only did the Minister for Public Health admit that the complaint made by Mr. Town that the Calicut General Hospital was ill-housed and ill-equipped and that the Mental Hospitals in the Presidency were overcrowded, but went one further and stated that all the hospitals were in a similar position and that they should all be demolished and replaced by new hospitals, well-equipped on up-to-date lines. It is some years since the position had so deteriorated, and the Advisers' Government did not move their little finger to stop the rot. Plans were ready for the reconstruction of some hospitals or for additions to some hospitals, proposals were before them for extending medical relief, but they put them all off on the wonderful plea that all their efforts and money have to be concentrated on winning the war, least mindful of the health and welfare of the people entrusted to their care. It is impossible to find a parallel for such a gross dereliction of duty in any part of the world, though many countries were directly involved in the war and had all the more the reason to concentrate all their efforts on winning it. It is no use crying over spilt milk, and we have therefore to concentrate all our attention on the great task that lies ahead. Old and dilapidated hospitals have to be demolished and replaced by new ones well-equipped with men and medicine, and medical relief has to be extended far and wide to make it easily available to anyone who may be in need of it. All these require men and money. So far as money is concerned, it is not necessary, as urged by Mr. Town, to give up prohibition and divert the excise revenue to this purpose. The introduction of prohibition in eight districts from October next and its extension to other districts in the years to come, will by itself result in the improvement of the health of the people and in the increase in their prosperity which will, in turn, improve the financial position of the Government considerably. Therefore no difficulty need be felt or envisaged in finding the necessary resources to improve the public health and to extend medical relief. Hospitals can be built, machinery and medicines can be got; but it is not possible to get the required trained personnel to properly man the existing hospitals and the hospitals and dispensaries that have to be established. Rome was not built in a day. As pointed out by the Bhore Committee it requires at least five years to make a medical man or woman. To satisfy the ever-increasing need for medical men and women, a number of medical colleges, much more than the number thought of by the Government or recommended by the Planning Sub-Committee, have to be established in different centres. If such colleges are established, and boy and girl students with real merit and aptitude for the profession admitted, we can have a large army of trained personnel at the end of five

and a half years and an increasing number thereafter, with whose help public health can be improved and medical relief extended. Till that time the existing hospitals should be improved and well-equipped and the available personnel put to the best use.

We have reserved to the last the question of the development of the Indian systems of medicine to which the Ministry has given considerable importance and for which a good slice of money has been set apart in the budget. Mr. H. S. Town entered a vehement protest against spending large sums of money for the development of the indigenous systems of medicine on the ground that they are static and wholly out-of-date. His complaint about the present state of the indigenous systems is no doubt true, but the responsibility for such a miserable state of things lies at the doors of an alien Government which, in its anxiety to improve and safeguard the allopathic system of medicine, not only adopted a step-motherly but also a hostile attitude towards the indigenous systems of medicine, in spite of their being aware of the fact that they commanded the confidence of the people, catered to their needs and were within their means. If in spite of this hostile attitude shown by the alien government, these systems of medicine survive yet, it is due to their intrinsic merit, and if only they received as much support as the allopathic system enjoyed, it will not be long before they are placed on a scientific basis acceptable to all. In the circumstances it is but natural that a popular government responsible to the people and aware of their needs and views, should come forward to develop these systems of medicine. We have no quarrel with them. Nobody will have any objection to the development of these systems. They are admittedly popular and cheap too. From what we make out from discussions in the Madras Legislative Assembly and in Communiqués issued by the Government of Madras, the Hon'ble the Minister for Public Health has decided to encourage the study of Indian Medicine and for this purpose has decided to open four more colleges and spend a considerable amount of money on this subject. We are sure the Hon'ble the Minister for Public Health is taking professional advice in this matter. We presume that it is the intention of the Hon'ble the Minister to develop these new colleges on the present lines. In other words, in these new Colleges of Indian Medicine, the students in addition to being taught Indian Medicine, will also be taught subjects of allopathic medicine such as anatomy, physiology, pathology, bacteriology, surgery etc. On this question, however, there does not seem to be unanimity in this country. There is a large body of opinion, both medical and lay, which feels that it will not be in the interests of either Allopathic or Indian Medicine to combine the two systems. These are of opinion that this is not the correct line of approach to the problem of development of Indian Medicine. They think that if these indigenous systems of medicine have to be developed, it should be done by the expansion of these systems in their own way with the knowledge of the *Tridosha* theory, *Vatha*, *Pitha* and *Kapha*, and the treatment of the diseases under this theory with medicines prepared under these systems of medicine should be imparted to the students who join these colleges proposed to be started and, we hope, manned by experts in that system. They are of opinion that for the development and recognition of Indian Medicine in the scientific world, research in Indian Medicine should be done by qualified scientists who will be able to prepare an Indian Pharmacopœia on a basis acceptable to the scientific world. One CHOPRA has done much in this direction, and many more.

such CHOPRAS should be made to come forward to undertake this task. When this is done, when the present static systems are made a living one pulsating with life and vigour and standing any scientific test, it would be time enough to think of imparting the knowledge of these systems to students of allopathy to enable them to have a working knowledge of these systems also. Let not the impossible task of uniting the East and West which differ in fundamentals, be undertaken. That would only result in evolving a system which would be a superficial blending of both the systems to the disadvantage of both. We are only placing before the Hon'ble the Minister for Public Health the other side of this question. We would therefore suggest that, it would be in the interest of the advancement of the indigenous systems of medicine to allow a free hand to these systems to develop on their own lines and under their own exponents than to attempt to mix up the two. Prudence dictates this course, real service to indigenous system demands it.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Vitamin deficiencies: Stigmas, symptoms and therapy.—The Council on Foods and Nutrition of the American Medical Association has published, in the June 22nd, 1946 issue of the Journal of the American Medical Association, the following statement with reference to Vitamin deficiencies, stigmas, symptoms and therapy.

This statement is the consensus of current views. In presenting the syllabus the Council emphasises the view that vitamins must never be relied on as a substitute for the regular consumption of an adequate diet.

The stigmas and symptoms associated with deficiency of vitamin A, thiamine, riboflavin, niacin, ascorbic acid, vitamin D and vitamin K are listed in this syllabus together with a statement concerning treatment of each deficiency. Deficiencies of several vitamins, notably biotin, pyridoxine, pantothenic acid and vitamin E, are not accompanied by stigmas which can be recognized at present. The subject is in a stage of fluidity and development which probably will necessitate early revision or amplification. Particularly is this true of the diagnosis and treatment of deficiency of folic acid. This vitamin has been prepared in isolated form so recently that its consideration here is omitted. Not many of the stigmas listed are diagnostic of a vitamin deficiency in themselves, but the occurrence of several of these stigmas in association is at least presumptive evidence of some nutritional failure. Vitamin deficiencies commonly encountered in clinical practice are multiple. Scrutiny of the dietary history is indicated in cases in which several of the stigmas listed are present. Due attention should be paid to the well known fact that stresses such as pregnancy, exposure or disease may occasion the development of deficiency states when the diet otherwise might be considered adequate.

Treatment for deficiency involves administration orally or, if need be, parenterally of large doses of the vitamin to be of therapeutic value and continuation of this treatment for long enough periods to assure a satisfactory therapeutic trial. However, since the diagnosis is necessarily presumptive in many instances, exclusive dependence on specific therapy is justified only infrequently, and basic to good treatment in all cases is a diet planned to be adequate nutritionally and assurance that the diet is eaten. The diet is important for the education of the patient and as a means of dispensing factors heretofore not isolated which will be contained in the foods of such a diet. Likewise helpful in treatment because of its content of factors not as yet identified is some good source of the vitamin B complex as a whole. Products such as brewers' yeast or an extract of such yeast, wheat germ, extracts of cereal grasses or of rice bran, crude extract of liver or desiccated liver represent such sources. For a patient who cannot take foods or drugs orally or in whom absorption is poor, crude liver extract may be given intramuscularly or even on occasion it may be diluted with sterile isotonic solution of sodium chloride or dextrose and administered by vein.

STIGMAS SUGGESTING DEFICIENCY OF VITAMIN A.—*Xerosis of the conjunctiva*.—Thickening with loss of transparency, so that only the more superficial vessels of the bulbar conjunctiva are clearly seen, associated with more or less yellow pigmentation, especially along the horizontal meridian of the eyeball; infrequently associated with small foamlake plaques called Bitot's spots.

Papular eruptions of pilosebaceous follicles.—A grater-like feel, which in early stages resembles gooseflesh but, when more fully developed, presents the appearance of

pilaris. The extensor surfaces of the arms and thighs and the flexor surfaces of the legs are primarily affected.

Xerosis or xeroderma of the skin.—Dryness, scaliness and crinkling, in extreme cases resembling alligator skin. In early stages the condition is associated with keratosis pilaris but it persists and extends after follicles have disappeared, the body hairs being broken and later lost. All parts of the body are involved, but the skin of the extremities, particularly of the legs, is more severely affected than the skin of the head and the trunk.

Follicular conjunctivitis.—Hypertrophy of the follicles, particularly of the lower eyelids.

Night blindness.—Conspicuous only in cases of advanced, severe deficiency.

Keratomalacia.—Thickening with subsequent ulceration and necrosis of the cornea; present only in most severe and advanced forms of deficiency.

TREATMENT OF VITAMIN A DEFICIENCY.—*Early deficiency state*.—25,000 U.S.P. units of vitamin A twice daily for two months or longer.

More chronic state.—25,000 U.S.P. units of vitamin A two to three times daily for a prolonged period.

STIGMAS SUGGESTING DEFICIENCY OF THIAMINE—*Loss of strength* of the quadriceps: disproportionate to loss of general strength, evidenced by difficulty in rising from the squatting position.

Loss of vibration sense.—first of the toes and later of the malleoli and tibiae.

Tenderness of the calves and hyperesthesia of the feet.—

Diminution and loss of the Achilles tendon and patellar reflexes first. Other tendon reflexes are lost in the later stages of the polyneuritis of "dry beriberi."

Edema of the shins, ankles and knee joints: found in "wet beriberi."

Enlarged heart with dependent edema and elevated venous pressure: Poor response to rest and administration of digitalis unless thiamine is given. There is a late manifestation of severe deficiency (beriberi heart).

Papillary edema with retinal haemorrhages.—associated with ophthalmoplegia and polyneuritis. The condition is a late manifestation of severe deficiency.

TREATMENT OF THIAMINE DEFICIENCY.—*Acute deficiency state*.—10 to 20 mg. or more of thiamine twice daily until relief of symptoms; this may be days or weeks.

Chronic deficiency state.—5 to 10 mg. or more of thiamine twice daily for a prolonged period.

STIGMAS SUGGESTING DEFICIENCY OF RIBOFLAVIN.—*Congestion of the limbic plexus*.—Visible with a small hand lens or the + 20 lens of the ophthalmoscope; invasion of the cornea by capillaries arising from this plexus (vascularization) requires a biomicroscope and slit lamp for detection.

Ochelosis.—Represented in chronic deficiency by excessive and irregular wrinkling,

in acute deficiency by swelling and erasure of the normal wrinkling of the lips. Reddening, thinning, scaling, chapping of epithelium are associated.

TREATMENT OF RIBOFLAVIN DEFICIENCY.—*Acute deficiency state*.—5 mg. of riboflavin three times daily for weeks.

Chronic deficiency state.—3 to 5 mg. of riboflavin three times daily for a prolonged period.

Angular stomatitis.—Various combinations of erythema and open fissuring in the angles of the mouth with or without a white, moist maceration (perleche); scars of healed fissures.

Dyssebacia.—An erythema overlaid with somewhat greasy, flaky accumulations resembling hoar frost, noted mostly in the alae nasi, canthi, pinnae and other folds of the skin, accompanied in some cases by coarsening and elevation of the sebaceous follicles of the nose and cheeks, the latter also seen with deficiency of vitamin A.

Magenta tongue.—A purplish red coloring with moderate edema and flattening of filiform papillae; observed in more advanced deficiency.

STIGMAS SUGGESTING DEFICIENCY OF NIACIN.—*Edema of the tongue*.—Shown by dental indentations.

Increased redness of the tongue.—Beefy red in chronic states; scarlet red in severe acute deficiency.

Congestion and hypertrophy of the papillae of the tongue, followed by fusion and atrophy.—

In early stages the fungiform papillae are congested and hypertrophied. This is followed by hypertrophy of the filiform papillae and later by their flattening. As they atrophy they fuse or mat together with multiple fissuring to give a cobblestone appearance and finally baldness. Vincent's infection of tongue and fauces, ulceration and pseudomembrane formation may or may not accompany these changes in the more advanced stages of deficiency.

Dermatitis.—Erythema, rough scaling, with ulceration and formation of bullae, affecting primarily areas of the skin exposed to light; namely, wrists, ankles, neck and face; observed only in severe deficiency (pellagra) and then frequently associated with diarrhoea and dementia.

Encephalopathy.—Clouding of consciousness, cogwheel rigidity and grasping, sucking reflexes observed in acute, severe deficiency.

TREATMENT OF NIACIN DEFICIENCY.—*Acute deficiency state*.—100 mg. or more of niacinamide twice daily for weeks.

Chronic state.—100 mg. of niacinamide twice daily over a prolonged period.

STIGMAS SUGGESTING DEFICIENCY OF ASCORBIC ACID.—*Redness, edema, tenderness and bleeding on pressure of the gums*.—Observed in acute or subacute deficiency of moderate severity, sometimes with, but usually without, other signs of ascorbic acid deficiency.

Thickening and increased firmness of the gums.—With recession and exposure of the base of the teeth, including recession of

control group; in the group with ascites interdental papillae; observed in chronic deficiency.

Retraction of the gums.—Leaving pockets between gum and tooth, secondary infection and resulting pyorrhea; observed in chronic deficiency.

Loosening and shedding of the teeth.

Increased capillary fragility.—Manifested by petechial hemorrhages of the skin, especially in the tourniquet test; observed in more severe acute and subacute deficiency. Easy brushing, spontaneous ecchymosis of the skin, idiopathic hemorrhage into joints and slow healing of wounds, observed in severe acute and subacute deficiency.

TREATMENT OF ASCORBIC ACID DEFICIENCY.—*Acute or subacute deficiency state*—100 mg. or more of ascorbic acid for weeks.

Chronic deficiency state—100 mg. of ascorbic acid three times daily over a prolonged period.

STIGMAS SUGGESTING DEFICIENCY OF VITAMIN D.—*Deformities of the skeleton.*—Bowed legs, malformation of the chest (funnel breast) and defects of the teeth may be residues of early rickets which is usually no longer active or susceptible to treatment; enlargement of the wrists, elbows, knees, ankles and costo-chondral junctions (beading, rachitic rosary) and bulging forehead (cranial bosses) which respond to treatment are found in infancy and in the rare example of late rickets.

TREATMENT OF VITAMIN D DEFICIENCY.—*In infants.*—1,500 to 2,500 U.S.P. units of vitamin D daily, continued for several months (double this amount for premature infants).

STIGMAS SUGGESTING DEFICIENCY OF VITAMIN K.—*A tendency to bleeding.*—Particularly from minor wounds, related to abnormal lengthening of the prothrombin time, developing spontaneously in newborn infants; observed in adults after treatment with dicumarol or large doses of salicylates; in advanced disease of the liver with poor excretion of bile, and in disease of the intestine, such as sprue in which vitamin absorption is disturbed.

TREATMENT OF VITAMIN K DEFICIENCY.—*In adults.*—1 mg. of vitamin K two to three times daily with or without bile (1 Gm. of desiccated bile or bile salts).

In newborn babies.—1 mg. of synthetic vitamin K intramuscularly daily in oil solution for several days.

DEFICIENCY SYMPTOMS.—A diagnosis of vitamin deficiency only rarely can be based on symptoms or less significant abnormalities than those which have been listed thus far. However, such symptoms and abnormalities frequently accompany the more specific lesions of deficiency.

Symptoms commonly observed with deficiency of thiamine, also less conspicuously in deficiency of other vitamins, include apathy, lethargy, increased emotional irritability, hypersensitivity to noise and painful stimuli, headache, vague fears, confusion of thought, uncertainty of memory, asthenia,

loss of manual dexterity, insomnia, heart consciousness, paresthesia, anorexia, nausea, flatulence, epigastric pain, constipation.

Photophobia, burning of the eyes, lacrimation and eyestrain not relieved by glasses are encountered in deficiency of riboflavin.

Other abnormalities unrelated to deficiency of any single vitamin but commonly observed in persons who are malnourished are dry, brittle, lack-luster, rebellious, so-called staring head hair, a loss of sleekness analogous to the rough coat of malnourished animals, blepharitis, spider-like telangiectasis of the face, seborrhea of the face, patchy pigmentation of the face, especially suborbital and circumoral sinus arrhythmia, bradycardia, tachycardia, low blood pressure, loss of tone of muscles and anemia.

—J.A.M.A., June, 1946.

Therapy in cirrhosis of liver.—Morrison deals with the results obtained from using various therapeutic combinations in the treatment of cirrhosis of the liver, or chronic hepatitis, in a series of 62 patients studied from 1938 to 1945. The series was divided into three groups each treated for two years over an eight year period. One group of 23 patients was treated only by such methods as were in use in 1938, that is, by paracentesis, diuresis, high carbohydrate diet and palliative therapy; this group contained 11 cases without ascites and 12 cases with ascites and was called the "untreated" control group. A second group of 19 cases was treated by a modified "Patek" regimen consisting of a nutritious high protein, moderate carbohydrate, low fat diet, liver extract injections and vitamin B complex therapy. This group contained 9 patients without ascites and 10 patients with ascites. A third group of 20 patients was treated intensively with a combined therapy which consisted of a maximum protein (three meat servings daily plus skim milk), high carbohydrate, low fat diet, daily injections of 5 cc. of a "whole" liver extract, highly potent injections of vitamin B complex, daily oral vitamin B complex and multiple (total) vitamin capsules orally together with 2 gm. each of methionine and choline daily. This consisted of 11 patients without ascites and 9 with ascites. Treatment with the intensive combined method resulted in reducing the mortality rate in the compensated group (without ascites) over a two year period of time to 0 (1943-45) as compared with 27 per cent mortality in the control group (1938-40). The intensive combined therapy in the group with ascites reduced the mortality rate from 75 per cent in the control group (1943-45). Treatment with the intensive combined therapy resulted in a sharp reduction in the length of the disability period from 82 per cent. (1938-40) to 28 per cent. (1943-45) in the groups without ascites and from 83 per cent. (1938-40) to 66 per cent. (1943-45) in the groups with ascites. The intensive combined method of therapy resulted in a remission of all signs and symptoms in 64 per cent. of cases of the group without ascites, as compared with remissions in only 10 per cent. of cases in the

remission occurred in 34 per cent of cases as compared with none in the corresponding control group.—J.A.M.A. from *Annals of Internal Medicine*.

Ultraviolet blood irradiation therapy of apparently intractable bronchial asthma.—The results of further study and clinical observation of the effects of ultraviolet blood irradiation therapy in 120 patients suffering from apparently intractable bronchial asthma have been tabulated. Of the 120 patients carefully followed up, 77 (64.1 per cent) were found to be relatively symptom free or definitely improved, 27 (22.5 per cent.) were slightly improved, and 16 (13.4 per cent) were unimproved.

Conclusion.—1. A marked and relatively permanent alleviation of severe dyspnea and cyanosis plus an obvious increase in general resistance has been observed in a relatively large percentage of patients suffering from apparently intractable bronchial asthma after the application of this method.

2. Blood irradiation therapy must be repeated at intervals of 2 to 8 weeks in cases of advanced asthmatic disease.

3. Six to ten months of treatment may be necessary before obvious improvement is noted.

4. Patients with advanced, severe, apparently intractable bronchial asthma cannot expect permanent alleviation of symptoms but often can be consistently relieved under constant treatment.

5. Patients with early, apparently intractable bronchial asthma respond more rapidly and maintain their improvement for longer periods than do those in an advanced stage.

6. The management of apparently intractable bronchial asthma requires, in addition to ultraviolet blood irradiation therapy, adherence to certain fundamental principles, e.g., elimination of predisposing aggravating influences, avoidance of instrumentation and nasal operations, and temporary use of epinephrine inhalants.

7. Autumnal aggravation of asthmatic symptoms occurred in approximately 30 per cent. of all patients under treatment but was purely temporary.

8. Children and young adults respond especially well to this type of therapy.

9. The Knott technique has been found to be a safe and efficient method of controlling apparently intractable bronchial asthma, with 77 of 120 patients (64.1 per cent) who received constant treatment and observations showing and maintaining definite improvement.—Milley, G. P., Seydel, R. E., Christensen, J. A.: Ultraviolet blood irradiation therapy of apparently intractable bronchial asthma. *Arch. Phys. Med.* 27: 24-29, January 1946.—*Naval Med. Bull.*

Artificial pneumoperitoneum.—Artificial pneumoperitoneum has been used in the treatment of certain cases of mainly unilateral pulmonary tuberculosis in which artificial pneumothorax is either impossible

because of adhesions or regarded as dangerous because of the acuteness of the disease and the consequent liability to pleural effusions or empyema. It is customarily combined with temporary or permanent phrenic nerve interruption, and its effect is to reinforce the use of the diaphragm produced by this procedure. The puncture is usually made through the anterior abdominal wall, a little below the costal margin and just lateral to the rectus abdominis muscle. After the pneumoperitoneum has become established refills may be more conveniently given through one of the lowest intercostal spaces in the flank. At the induction, and sometimes at the refills, no reading of pressure is obtained before the air is introduced, and the finding of the space is therefore a matter of skill and experience. The quantities of air usually introduced are much higher than in artificial pneumothorax, and average about 800 to 1,000 ml. When the pneumoperitoneum is established this quantity may be required at intervals of a week to a fortnight.

The dangers of the procedure include air embolism, which does not appear to be more frequent than with artificial. Pneumothorax and peritoneal effusion and tuberculous peritonitis, which are very much less common than the corresponding affections of the pleura in artificial pneumothorax. In addition less serious complications, such as discomfort and dyspepsia from abdominal distension, and the production of inguinal and other hernias which may contain air, have been recorded. So far as the results are concerned, the procedure is a relatively recently introduced one about which no agreed opinion has been reached.—B.M.J. June 22, '46.

The hypertensive heart.—Many patients can endure hypertension of relatively slight and variable degree for many years without serious complications, but marked hypertension, especially involving the diastolic level, and often of the so-called malignant type, carries in its train within a relatively short time, that is, within a few years, very serious involvement of the heart and not infrequently death from heart failure with less frequent mortality from cerebral vascular or renal involvement.

Hypertensive heart disease is not synonymous with hypertension. There must be at least clear proof of enlargement or strain before the diagnosis of hypertensive heart disease can be made. Physical examination reveals hypertensive heart disease rather late in its course; by the time the heart is large enough or has failed sufficiently to produce signs or symptoms there is an advanced degree of hypertensive heart disease. X-ray evidence is also not early as a rule although enlargement by x-ray, especially if serial records are taken, gives earlier evidence of cardiac involvement than does physical examination. The earliest evidence, as a rule, of hypertensive heart disease is electrocardiographic, but not the pattern

which was at one time regarded as characteristic, namely, abnormal left axis deviation although that is often found. The most significant electrocardiographic evidence of hypertensive heart disease, that is, of evident hypertensive strain on the heart, is to be seen in the S-T segments and in the T waves, somewhat in the former but particularly in the latter, in Lead I and in the precordial leads C_4 and C_5 , in most cases soonest in Lead CF_5 ; Lead CF_5 is the lead taken with the exploring electrode on the anterior axillary line and with the left leg as the indifferent lead point. This lead has, as a rule, in our experience, given the very first evidence of hypertensive heart strain. The effect of hypertension on the S-T segments and T waves is to cause their lowering; hence we tend to find a depression of the S-T segments and particularly a lowering of the T waves until eventually they may become quite deeply inverted in Leads I and 2 as well as in Leads C_4 and C_5 and even in C_2 . As noted above there may be also considerable left axis deviation but the commonest cause of left axis deviation in these hypertensive heart cases is a horizontal heart position from a heavy build with a high diaphragm.

The evolution of evidence of hypertensive heart disease has thus consisted of the discovery first of electrocardiographic changes; second, of increasing heart size by x-ray examination; third, of clinical evidence of enlargement and later weakening of the left ventricle on physical examination (apex impulse to the left and below the normal position, pulmonary second sound becoming loud and equalling or surpassing the accentuated aortic second sound, diastolic gallop rhythm, and alternation of the pulse); and finally, fourth, symptoms of congestive heart failure, first of the left ventricle (shortness of breath on effort or paroxysmally at rest) and then of the whole heart (with congestion of liver, dependent edema, and increased venous pressure showing itself particularly in the jugular pulse). This evolution may take years to develop, sometimes as much as twenty, or it may take, as in malignant hypertension, only a year or two up to a state of serious heart failure. There is as a rule parallelism in the evolution of the clinical course and of the electrocardiographic and x-ray changes.

Treatment of the heart weakness and failure is, of course, that classically carried out for myocardial weakness due to any cause, namely, rest, digitalization with its maintenance, the use of diuretics, and other accessory measures. Fundamentally, however, the control of the hypertension itself is much more important. Treatment of the hypertension in the past has been very disappointing. Rest, diets, and drugs have not availed much. Prolonged rest and heavy sedation have been the most useful measures but they are temporary and, as a rule, as soon as the hypertensive individual becomes active again or wakes up from his deep sleep the blood pressure rises. Less effective even than the sedative drugs have been the nitri-

tes and many other medicines including thiocyanates which although helpful in some cases are often quite toxic and rarely establish or restore normal blood pressure.

Specific drugs to control high blood pressure are still lacking although we hope that some medicine which will harmlessly maintain a fairly constant and adequate vasodilatation will eventually be forthcoming. One measure, however, has, during the last six years, given much promise of more permanent benefit and that is the special technic of lumbodorsal splanchnic sympathectomy developed by Smithwick. Over the interval of these few years in hundreds of cases careful follow-up studies have shown a much more favourable specific effect on the blood pressure in hypertension by this procedure than by any other method of treatment carried out in the past. The two-stage operation itself requires much technical skill and experience and is an operation of major proportion which requires a long convalescence for adequate adjustment of the blood pressure, sometimes extending for months. There are, however, in well selected cases a very low mortality and a two-thirds or better chance of considerable or worthwhile improvement in the blood pressure levels and thereby in the strain on the circulation.—Paul D. White, M.D.—*Bull. New Eng. Med. Centre.*

Oral penicillin.—1. Penicillin given by mouth was absorbed from the gastro-intestinal tract. Higher and more prolonged blood levels were reached by ingested penicillin in combination with buffers, such as trisodium citrate and aluminum hydrate gel. These differences appeared to be especially pronounced when medication preceded or followed food intake by a short interval. Buffered penicillin is superior to penicillin in oil-beeswax mixture. The ration of comparable doses in oral (penicillin buffered with sodium citrate) and parenteral (plain penicillin) administration was found to be about 3 to 1.

2. Given in doses which were approximately three times higher than the customary parenteral doses, penicillin by mouth proved to be therapeutically effective in pneumonia, in upper respiratory infections and their complications, in gonorrhoea, and in pyogenic cutaneous infections.

It appears inadvisable to supplant parenteral with oral penicillin indiscriminately. Parenteral administration still remains the method of choice, at least during the early acute phase, in the very sick patients with septicemia or meningitis. Further studies are indicated for the role of oral penicillin in the prevention of recurrences in rheumatic infection, in the treatment of sinusitis, of intrinsic (bacterial) asthma, the low-grade infection associated with glomerulonephritis, and many other sub-acute, chronic, or recurring infections.—Gyergy, P., Evans, J. W., Rose, E. K., Perlingiero, J. G., and Elias, W. F.: Oral penicillin. *Pennsylvania M. J.* 49: 409-416, January 1946.—*Naval Medical Bull.*

Toxic effects of DDT in man.—Exposure of two subjects for 48 hours under special conditions (oily surface, large skin areas exposed, high ambient temperature, and relative humidity) produced definite toxic effects, including an increase of erythrocyte destruction (siderocytosis), a decrease in the mean corpuscular hemoglobin, an increase in reticulocytes, a slight fall in hemodynamic index, a diminution of polymorphonuclear neutrophil leukocytes accompanied by the appearance of immature white cells, the appearance of indoxyl sulfate in the urine, tiredness, heaviness, and aching of limbs, diminution of some reflexes, unilateral slight impairment of hearing, transient "yellow vision" (one subject), muscular fibrillation (one subject), peripheral patchy anesthesia (one subject), weakness of the legs, and a curious apprehensive mental state. A return to normality took between 26 and 33 days.

The significance of these findings is discussed, the merits of the examinations used are considered in relation to the control of DDT intoxication, and the danger of DDT in the presence of oil is emphasized.—Case, R. A. M.: Toxic effects of 2,2-bis (p-chlorophenyl) 1,1,1-trichloroethane (D. D. T.) in man. *Brit. M. J.* 4432: 842-845, December 15, 1945.—*Naval Medical Bull.*

Uses of and precautions with DDT.—DDT is not a cure-all, nor is it a substitute for any other phase of environmental sanitation. It is recommended, however, as an effective poison for a number of insects, particularly flies, mosquitoes, cockroaches, bedbugs, fleas and lice. It has value in improving sanitation in the home, school and on the farm.

DDT is not soluble in water. It can be used as a dust. Mixtures containing 5 to 10 per cent DDT and talc are effective on most insects. In this form it can be applied to the skin of man and most animals when reasonable precautions are followed. However, DDT powder cannot be used on cats. They will lick themselves and may swallow enough DDT to cause illness.

DDT is a poison, and as with other insecticides certain precautions are necessary to prevent any possible harmful effects.

1. DDT in oil solution is absorbed through the skin. Never apply the solutions to man or animal. If accidentally spilled on clothing, change promptly. Wash hands and exposed skin with warm soapy water.

2. Avoid inhaling the mist when spraying. Ventilate the room, and if extensive work is to be done, wear gloves, goggles and a respirator.

3. Cover food, dishes, and cooking utensils, or remove them from the room when spraying or dusting.

4. DDT looks like flour. Do not store the powder in the kitchen. Keep it out of the reach of children.

5. If DDT is swallowed accidentally, drink some mustard water immediately and call a physician.

6. DDT oil solutions are inflammable. Keep away from fire.—*Jl. Iowa St. Med. Society, July, '46.*

Neostibosan in filariasis.—Culbertson and his associates administered neostibosan to 35 patients with filariasis due to *Wuchereria bancrofti*, of whom 20 were apparently entirely cured of the infection, as shown by their loss of all microfilariae during the period of observation (five to fifteen months). Ten others lost more than 80 per cent of their circulating microfilariae and appeared likely to lose the remainder within a few additional months. In 5 of the 35 treated persons, administration of the drug failed to influence the infection noticeably. Fifteen untreated controls were all still infected after observation from fourteen to seventeen months. Neostibosan appears to act chiefly on the adult phase of the worm rather than on the embryos in the blood, although once the adults are killed the embryos gradually decline in number. The immediate reactions of patients to neostibosan were slight, consisting chiefly of nausea and vomiting. Usually patients acquired tolerance for the drug within the first several days of its administration. In no case was it necessary to stop the drug because of toxicity. In no patient were symptoms suggestive of elephantiasis induced by chemotherapy.—*Extracted in the J. A. M. A. from the American Journal of Hygiene.*

Neurosyphilis: Its diagnosis and treatment.—Neurosyphilis, a social, economic and medical problem of significant import should concern the rank and file of practitioners as much as cancer, tuberculosis, poliomyelitis and other headlines on the national health stage.

The central nervous system is involved early in syphilis. The cerebrospinal fluid is affected at the time of the secondary rash and often as early as four weeks after infection. The involvement may be manifested only by a moderately severe, transitory headache. Twenty-five to 40 per cent of the spinal fluids will show abnormalities at this time. Syphilis should be thoroughly and uninterruptedly treated by orthodox techniques, and that follow-up examinations of the cerebrospinal fluid should be routinely performed, without special indication, six months after completion of treatment, and then at least once yearly. An asymptomatic luetic with a normal cerebrospinal fluid four years post-infection is unlikely to develop neurosyphilis, and routine cerebrospinal fluid examinations may be abandoned.

Neurosyphilis may be meningeal, vascular or parenchymatous. Neurosyphilis may be asymptomatic or symptomatic.

History and physical examination are often misleading.

The anatomical diagnosis of the central nervous system pathology is essential, but the etiological diagnosis is even more important, for the treatment of neurosyphilis has much to offer.

Meningeal neurosyphilis manifests itself often as an acute meningitis. It usually occurs during the first year, but may ever

occur late in the disease as an accompaniment of parenchymatous neurosyphilis. Less than 5 percent of leucocytes show this manifestation. It generally occurs in young individuals who have abandoned treatment after a few "shots." It is manifested by headaches, nausea, stiff neck, mental confusion, and cranial nerve palsies, and may be confused with epidemic meningitis. Examination of the cerebrospinal fluid establishes the etiology because it shows a positive serology, a marked elevation of cells up to 300 or 400 (even as high as 2100) with lymphocytes predominant, and an increase in the total protein and globulin. It is readily amenable to chemotherapy, which unfortunately, may mislead the patient and physician to abandon treatment prematurely. Treatment should be maintained for 18 months at least, with continued routine examination of the cerebrospinal fluid as previously mentioned.

Vascular neurosyphilis may develop at any time after the primary sore. The diagnostic signs or symptoms may be those of a space-occupying lesion or of arteriosclerosis. It should be considered in a young individual, without hypertension or cardio-vascular renal disease, who experiences an episode simulating the result of a cerebrovascular accident, or neoplasm. It can also mimic multiple sclerosis, spinal cord tumors and any form of myelitis. The diagnosis is aided by a positive blood Wassermann test or the history of one. The findings in the cerebrospinal fluid may be entirely negative if the lesion is deep-seated. The findings may be those of a brain or spinal cord tumor, or the reaction may be meningeal in type, according to the location of the pathology. Chemotherapy is the proper approach. The degree of functional recovery depends on how much the symptoms were due to: (a) edema, and (b) the size and number of thrombosed vessels.

Late symptomatic parenchymatous neurosyphilis usually takes the form of paresis or tabes but may be manifested as primary optic atrophy or chronic anterior poliomyelitis. The discovery of a positive cerebrospinal fluid (which really is a mirror of the parenchymatous pathology) in an asymptomatic luetic, should cause appropriate treatment to be promptly instituted and continuously enforced.

A nicety of judgment is involved in the treatment. Consideration has to be given to fever therapy alone or in combination with chemotherapy, including penicillin. Acute syphilitic meningitis, diffuse meningo-vascular neurosyphilis or vascular neurosyphilis should not be given malaria, unless improvement fails to occur after at least six months of chemotherapy.

The absolute contraindications to fever therapy are tuberculosis, nephritis, and advanced cardiac disease with decompensation. Latent tuberculosis may be activated.

Relative contraindications depend upon the conscience of the therapist.

The preinoculation work-up includes a complete history, physical neurological, ophthalmological, dental, and mental

examination. The auxiliary aids employed should include a blood Wassermann test, spinal fluid examination as previously described, urinalysis, blood count, urine concentration test, blood N. P. N., icteric index, total serum proteins, chest X-ray, and an electrocardiogram.

Malaria therapy may be induced either by the inoculation of trophozoites from the blood of an individual suffering with malaria, or of sporozoites through bite of a malaria-infected mosquito. The mosquito technique of artificially-induced malaria produces a reaction more nearly resembling natural malaria. It has certain disadvantages. An insectarium must be maintained, mosquitoes must be dissected to determine their infectivity, and recurrences are not infrequent, occurring more readily than in the trophozoite-induced disease.

Problems in individual immunity are sometimes encountered. Vivax malaria is the species of choice in white individuals who have not had a previous experience with malaria. Quartan malaria should be reserved for those white individuals who previously had malaria, and for all Negroes, Puerto Ricans, and individuals of Mediterranean nativity. Falciparum malaria should almost never be used and then only when ideal laboratory and clinical control are possible and where inoculations with Vivax or Quartan have failed. Spontaneous remissions may be encountered in any of the three species before the desired number of paroxysms have been obtained, so that reinoculation may be necessary. If less than five Vivax paroxysms have been obtained, the patient should be reinoculated with Plasmodium Malariae (Quartan), but if more than five paroxysms have been obtained, a sufficient number of additional paroxysms may be produced by the use of a heterologous strain of Vivax. Primary quartan inoculations seldom require reinoculation.

Intradermal inoculations more nearly mimic natural malaria and are more apt to produce a tertian cycle from the onset. The blood may be taken directly from the donor, and given immediately without delay to the recipient, or oxalated or defibrinated blood may be stored and shipped across the continent in a vacuum bottle with dry ice. It may even be drawn one day, kept in an ordinary refrigerator overnight, and used the next day without any unusual refrigeration precaution and still be infective. Blood may be given intracutaneously, subcutaneously, intravenously, or intramuscularly. Typing of the blood is not required unless more than 10 c.c. are given, which in our experience has never been necessary.

The incubation period of therapeutic malaria is variable, from 7 to 14 days in Vivax and 7 to 30 in Quartan. The clinical course is unpredictable. Seldom is the textbook type of febrile episode experienced. Most of the patients experience a little headache, general malaise and nausea for a few days, before they actually demonstrate any febrile response. Following

inoculation, the temperature should be routinely recorded four hourly, but during the paroxysms it should be taken every hour to determine the peak. To be considered therapeutically effective, a paroxysm should reach a temperature of 104°F. The initial elevation of temperature may be of a remittent type for a number of days until it settles down into the cyclic rhythm. Patients may approach exhaustion any time during the therapy before the optimum amount of fever is obtained. Physical activity is to be encouraged between paroxysms. Aspirin must never be given for comfort. They may be given some rest by the administration of thio-bismol. Thio-bismol may at times help to knock out a weak brood of parasites which is giving an annoying but therapeutically inadequate fever between the regular cycles.

During the course of the therapy, the hemoglobin is checked twice weekly and the red and white blood cells on indication. The icteric index is repeated only if jaundice becomes notable, and serum proteins only if edema is serious. They are taken before inoculation as a base line for comparison with subsequent ones. The spleen and liver are palpated frequently, and the weight is recorded weekly.

The optimum number of paroxysms in therapeutic malaria is debatable, but 8 to 12 seem to have majority support.—*Jour. Med. Soc. N.J.*

Penicillin: Its usefulness, limitations, diffusion and detection, with analysis of 150 cases in which it was employed.—W. E. Herrell, D. R. Nichols and D. H. Heilman. *J.A.M.A.* 125: 1003 (Aug. 12) 1944.

Penicillin therapy should be confined to infections due to pathogens known to be susceptible to its action.

Serious toxic reactions have not followed use of either the sodium or the calcium salt for intrathoracic, intra-articular or intrathecal instillation; nor have such reactions attended local application or intramuscular or intravenous administration in the doses recommended.

Local irritation at the site of injection of either the sodium or the calcium salt of penicillin varies with different batches. Changing the site of administration or changing the product often will terminate this reaction. The only other toxic reaction of any significance is the occurrence of urticaria and irritative dermatitis. The latter reaction is very infrequently seen. Febrile reactions may occur if the penicillin employed is not pyrogen free.

The continuous intravenous drip method of administration of penicillin best maintains a constant level in the blood.

While penicillin diffuses fairly readily into most tissues, it does not reach the spinal fluid following intravenous or intramuscular injection. It is necessary, therefore, to administer penicillin by the intrathecal route at least once daily in treatment of infections involving the cerebrospinal structures. Following intravenous administration of penicillin, antibacterial amounts of the

material reach the fluid of septic joints. Likewise, penicillin is transmitted through the placenta from the mother to the fetus. This is important in penicillin therapy for antepartum syphilis.

We believe Fleming's adaptation of the Wright slide cell technic to be the most reliable method of determining the penicillin content of serum.

Of 150 patients suffering with infections owing to a variety of pathogenic bacteria, 103 were treated with the sodium salt of penicillin and 47 with the calcium salt. The calcium salt is handled more easily and appears more stable. Among 28 patients suffering with bacteremia, most of whom had resisted sulfonamide therapy, 25 recovered and 3 died. At present, 80,000 units in twenty-four hours appears to be the most satisfactory dose in cases of bacteremia.

Other bacterial infections for which we have used penicillin include bacterial endocarditis, severe cellulitis, postoperative wound infection, osteomyelitis (acute and chronic), gas gangrene, sulfonamide resistant gonorrhea, actinomycosis, infections of the urinary tract, meningitis, pulmonary suppurative disease and a small group of miscellaneous infections. The results with 107 patients (1 of whom was counted twice, as is explained in table 3) could be considered brilliant or satisfactory; doubtful results or failures occurred with 44.

The use of penicillin should not be attempted in the treatment of gram-negative bacillary infections, including undulant fever, tularemia, influenza, infections due to the colon-typhoid-dysentery, group of infections due to *Klebsiella pneumoniae*. Infections of the urinary tract due to gram-negative organisms do not respond to penicillin. It has not proved useful in treatment of tuberculosis, acute rheumatic fever, lupus erythematosus, pemphigus, mononucleosis leukemia, ulcerative colitis, malaria or blastomycosis.—*E.E.N.T.M.*

Nocturnal cramps in legs.—Nocturnal cramps in the lower extremities, occurring during bed rest and frequently awakening the patient, are not limited to the senile. They occur fairly frequently in pregnant women, especially during the second half of pregnancy. They also may be most annoying to relatively young men and women. The usual phenomenon is muscular spasm with intense discomfort, not dissimilar to the cramps occurring in swimmers and especially in those exerting themselves violently (ineffective, poor or panic stricken swimmers) in cold water. The episodes are closely related both in their subjective distress and in their pathogenesis to the painful attacks in intermittent claudication.

The clinically significant fact is that such cramps arise when the tissue respiration is interfered with, usually as a result of an inadequate local circulation. Two factors other than histoxia are also clinically significant: the availability of dextrose to the muscle fibers and the concentration of calcium in the blood. Hypoglycemia may

induce attacks of angina pectoris; oxygen is relatively useless to working muscle cells unless there is enough dextrose to be oxidized and insulin to catalyze the reaction. This factor is particularly prominent in the pathogenesis of painful muscle cramps in older persons.

Frequently depletion of the blood calcium is associated with a tendency to nocturnal muscle cramps and spasms. Most of these patients admit that they consume almost no milk, the major dietary source of calcium. The hypocalcemia observed in hypoparathyroid tetany is well known. The adrenal secretions are also involved in the control of muscle tone. During the second half of gestation there is a considerable drain on the maternal calcium because of the rapid growth of fetal bone. Oral administration of calcium will in many instances greatly diminish or wholly arrest these recurrent and distressing cramps.

In the elderly, nocturnal cramps are most likely to be associated with impaired circulation due to arteriosclerosis or vascular spasm, with some possibility of nocturnal hypoglycemia as a contributory factor. Though it is commonly assumed that external heat improves the peripheral circulation and that therefore the quiet warmth of the bed should prevent rather than enhance the occurrence of muscular histanoxia, recent studies have convincingly demonstrated that heat increases the metabolic needs, whereas refrigeration decreases the metabolic level, so that if a limb is kept cool a poor circulation may be adequate (Bowers, W. F.: *Mil. Surgeon* 93: 289 [Sept., 1943]). It is thus perfectly feasible to consider that the warmth of the bed may contribute to the occurrence of such cramps.

Therapy should wait on as precise a diagnosis as possible. Study of the circulatory efficiency of an extremity, x-ray films to reveal calcification of the major arteries, determination of the fasting blood sugar and blood calcium concentrations should precede the outlining of a therapeutic regimen.—*J.A.M.A.* Vol. 124, No. 7, p. 471.—*J.M.Sc. New Jersey, July, Vol. 43, No. 7.*

Penicillin in syphilis and gonorrhea.—**EARLY SYPHILIS.**—*Treatment schedule:* Recommended schedule is 40,000 units of penicillin sodium every two hours for sixty doses. (Aggregate dosage is 2,400,000 units.)

Penicillin in Oil and Beeswax (Romansky formula): Reports indicate that this is an effective method of treatment, but it is still in the research stage. Suggested dosage in early syphilis is one injection of 600,000 units daily for eight days, to a total dosage of 4,800,000 units. This material is not supplied by the N. J. State Department of Health.

Combined Therapy (Arsenicals, Bismuth and Penicillin): There is little present evidence to substantiate the suggested synergism

between arsenicals and penicillin. The increased patient risk tentatively when arsenicals are used) contraindicates the routine use of arsenicals combined with penicillin.

It might be desirable to follow the penicillin treatment with six to ten injections of bismuth (2 c.c. of insoluble bismuth every week). However, with this form of follow-up treatment relapses may be delayed.

LATE SYPHILIS.—*Late latent:* Recommended dosage is 40,000 units every three hours for a hundred doses. (Aggregate dosage is four million units). If the patient has cardiovascular syphilis, there is danger of a fatal Herxheimer reaction. If penicillin is used in cardiovascular cases, the patient should receive five or more bismuth injections prior to institution of penicillin therapy.

Neurosyphilis: Recommended dosage is 40,000 units every three hours for 150 doses, to an aggregate of six million units.

Because of budgetary limitations, the State cannot furnish penicillin nor reimburse for hospitalization of late latent or tertiary syphilis.

FOLLOW-UP OBSERVATIONS.—When penicillin is used in early syphilis, most relapses are revealed during the third, fourth or fifth post-treatment month; rarely later. Follow-up should include quantitative serologic test and physical examination once a month for six months with spinal fluid study at end of sixth month. Further follow-up examinations for a year are desirable; but beyond the sixth month, such follow-ups should be made the responsibility of the patient.

PENICILLIN AND GONORRHEA.—*Recommended schedule:* Aggregate dosage of 200,000 units should be divided into three doses and given at two hour intervals. If this fails, a second course of 400,000 units should be given.

Penicillin in oil and beeswax: Good results have been obtained. Recommended dosage is 300,000 units given as a single injection.

The emulsions (sesame oil-cholesterol, etc.) are still in experimental stages and are not now recommended.

Penicillin tablets orally have been used with beneficial results; however, the cure rate is not as high as when penicillin is given by injection.

Non-specific urethritis is frequently seen following penicillin treatment for gonorrhea. Fifteen to 30 per cent of these patients show "morning drop" for variable periods up to several weeks. These patients are prone to become "genital conscious" and the mere mechanical irritation (by frequent milking of the urethra to produce a drop) is sometimes enough to keep the condition active. When active therapy is desired, mild instillations seem to be the treatment of choice.—*Jour. Med. Sc., New J., July 1946.*

SURGERY

Congenital hypertrophic pyloric stenosis.—In writing in the June 22, 1946 issue of the *Journal of American Medical Association*, William E. Ladd, M.D., Paul F. Ware, M.D., and Lawrence K. Pickett, M.D., Boston, give their experiences of 1,145 patients treated for pyloric stenosis by the various members of the Surgical Service of the Children's Hospital. 85% occur in male and particularly in the first born. No explanation is available for this overwhelming incidence. They point out that there are strong arguments in favour of heredity factor. The essential pathology is hypertrophy of the circular smooth muscle layer of the pylorus. The most important findings discussed are dehydration, vomiting, scanty stools and urine, visible gastric waves, and palpable pyloric tumour. The red blood cell count and hemoglobin values are essentially normal. Urine examination was negative, plasma and vitamin C determinations were made and found to be uniformly low. The essential roentgen features of diagnosis are: (1) gastric dilation, (2) intermittent hyperperistalsis, (3) a greatly elongated pyloric canal, and (4) delayed gastric emptying time. These were differentiated from pylorospasm, infectious vomiting, improper feeding, intracranial injury, volvulus, intestinal obstruction, and chaliasia of the esophagus. They point out that surgical treatment has been universally recognised as treatment of choice.

Preoperative care is stressed. The aim should be to restore the baby to as nearly normal a nutritional state as possible before operation. Correction of dehydration, ketosis and low chlorides by adequate fluid therapy are as important as surgical skill in lowering mortality rates in this condition. Two or three days of preparation with parenteral fluids should be the minimum. Infant's fluid intake should be maintained at 2 1/3 ounces per pound daily.

During operation conservation of body heat is a primary consideration in these debilitated infants. The extremities are wrapped in several layers of sheet wadding, and the baby is pinned to the operating table with a hot water bottle under his back to provide heat. Premedication consists in the administration of atropine sulfate in appropriate doses. Barbiturates and morphine in the opinion of the writers, are dangerous. Open drop ether is the recognised method of choice.

The authors then next give a detailed description of the operation of pyloromyotomy through Robertson gridiron incision. They stress the necessity for post-operative care. Feedings are begun as soon as the baby is conscious and fluid is given every two hours for the first thirty-six hours. After this, the feeding schedule is lengthened to three hours and breast milk is gradually increased. Postoperative transfusions of plasma and whole blood are given as indicated by the red blood cell count and the serum protein and hemoglobin values. The

skin sutures are removed on the 5th or 6th postoperative days and the baby discharged home on the 9th or tenth day. Complications do occur sometimes such as duodenal perforation, otitis media, pneumonia and severe diarrhoea. Under this regime the mortality per cent has been reduced from 5.95 in 1915-1935 to 0.89 in 1936-1945.

Hypoproteinemia in surgical patients.—Body metabolism results in the destruction of protein and it is necessary that protein replacements be made if the organism is to survive. The synthesis of proteins takes place in the individual cells using amino acids derived from protein digestion. The cells of the liver, reticulo-endothelial system and muscles are thought to be the center of protein synthesis. The simplest protein chemical units known to be necessary in this chemical process are valine, threonine, arginine, leucine, histidine, isoleucine, lysine, tryptophan, methionine and phenylalanine. Other amino acids may be used in the metabolic compounding of proteins (albumin, globulin, and hemoglobin) but it is known that the ten named will produce growth and maintain a positive nitrogen balance.

Whipple and Madden expressed the belief that a dynamic equilibrium exists between plasma protein and cell protein. That is, protein will flow from cell to plasma or from plasma to cell depending on the conditions at the moment. They found that dogs could be maintained in nitrogen balance by administration of plasma intravenously while only carbohydrates, minerals and fats were fed orally. They believe that fats and salt favor normal nitrogen metabolism. No significant hypoproteinemia developed in the dogs, and the albumin-globulin ratio did not change despite the fact that plasma was the only source of protein. The protein reserve is not of finished protein (globulin and albumin), but exists within the cell as cell protein which can be mobilized and contributed to the blood stream as globulin and albumin. These authors believe that the great bulk of synthesis goes on in the liver, which supplies the energy and site for amino acid aggregation. Also, it has been suggested that the fundamental protein for exchange is albumin. Globulin is a slight modification of the albumin which takes place in the body cells. Protein depleted dogs produce no hemoglobin or plasma, and are susceptible to infections. Whipple and others have shown that hypoproteinemic dogs can synthesize protein from hemoglobin.

The normal values for total serum protein are 6.5 to 8.2 grams per 100 cubic centimeters of serum, while for serum albumin the value is 4.6 to 6.0 grams per 100 cubic centimeters of serum. When the total serum protein of less than 6.5 grams per cent or serum albumin of less than 4.0 grams per cent exists, a protein deficiency is present. These values may be masked by dehydration or infection, or both. Hypoproteinemia may be present in patients who are unable

to consume protein bearing foods as in gastro-intestinal diseases, or who have intestinal obstructions and are subjected to persistent vomiting. Some patients may be able to ingest protein foods but not in sufficient amounts to maintain a nitrogen balance. Patients who may be operated upon without due regard for blood protein levels preoperatively and postoperatively are subjected to possible complications such as nutritional edema, poor gastro-intestinal motility, wound infections, wound dehiscence, decubitus ulcers, and even a so-called "liver death."

Wound dehiscence is one of the most disquieting complications in abdominal surgery. Kraybill reported that investigations for the past five years have shown the importance of protein metabolism and vitamin acid in wound healing. The incidence of wound disruption in his 375 abdominal cases was 1.8 per cent. Eviscerations occurred on the fourth to fifteenth postoperative days and the location of the incisions made no difference in the occurrence. The wounds in Kraybill's series were sutured with catgut. The presence of coughs, postoperative distension or drainage did not especially influence the incidence of wound disruption. He found the average age of patients with separation of wound was 62.8 years and that the mortality after resuture was 42 per cent. Thompson's (quoted by Kraybill) experimental work in 1933 showed wound healing was retarded by hypoproteinemia. Lund (also quoted by Kraybill) wrote that a 15 per cent. reduction of protein may lead to moderate delay, and that a 25 per cent reduction is enough to cause severe delay in wound healing. It has been shown that the tensile strength of catgut is accelerated by hypoproteinemia and that wound disruption occurs less commonly when silk or non-absorbable suture material is used. All patients having wound separations in Kraybill's series had protein deficiencies with levels below 6.5 milligrams per cent.

Thornton and others investigated the serum protein changes in thoracic surgery and found a constant drop of approximately 1.0 gram occurring three to five days after major surgery. Contributing causes for this serum protein drop are diminished protein reserve, operative blood loss, loss of blood plasma into wound and pleural space post-operatively, infection, and inadequate replacement.

Rhoda and Kasinskas produced fractures of extremities in protein depleted dogs which were fed protein free diets. It is known that serum calcium is bound up with serum protein, so that when protein depletion occurs serum calcium is reduced in amounts. Although hypoproteinemia has not been observed clinically as a cause of delayed union because of so many other factors, these experiments showed reduced callus formation in hypoproteinemic dogs.

The author has seen the effects of hypoproteinemia in surgical patients in the care of prisoners of war in the European Theater of our recent war. Well-nourished American

soldiers' wounds healed normally. However, when clean surgical wounds were present in prisoners, most of whom had been on scant protein rations before their capture and in stockades after capture, a high percentage of them became infected and were slow to heal. This occurred despite the youth and vigor of the prisoners. The blood proteins of these surgical patients were in the lower limits of normal, or below. The use of chemotherapy would not always forestall the development of these wound infections.

The surgeon has at his command several methods of protein replacement which can be adapted to practically any patient. The cost of replacement may sometimes become exorbitant, but one is obliged to use them for life saving measures. A live patient is better than a dead one regardless of the expense involved. The simplest, most pleasurable, and cheapest (perhaps) method of protein replacement is by ingestion of food. The minimal protein requirement is 100 grams daily to replenish loss. The sources of proteins are from such foods as meats, cheese, milk, peanuts, and some smaller amount from vegetables. It takes 70 to 100 or more grams of meat to supply 20 grams of protein for body metabolism. One quart of milk will supply about 35 grams of protein. A palatable high protein diet of 300 grams may need to be ingested to supply deficiencies.

Recent years of research have developed amino acids in combination for parenteral use when insufficient protein foods can be ingested. In gastro-intestinal operative procedures, these are of value for intravenous protein supply when oral administration is not feasible. Commercial preparations are packaged in 5 per cent. or 10 per cent. solution (with glucose). The surgeon must administer 1,000 cubic centimeters of 10 per cent. or 2,000 cubic centimeters of 5 per cent amino acid solutions in order to maintain an intake of 100 gram; the minimum intake for nitrogen balance and healing of surgical wounds. Although these solutions may cause some symptoms, such as nausea and elevated temperature on too rapid administration, they can be given without harm to the patient.

Another method of supplying protein to the patient unable to ingest food is the intravenous use of plasma. Meyer stated that it requires 2,000 cubic centimeters of plasma to elevate the circulating blood protein 1.0 gram per 100 cubic centimeters. Approximately 15 grams of protein are present in one unit (250 cubic centimeters) of plasma. Mulholland (quoted by Meyer) calculated that it would take the plasma from 26 pints of blood daily to gain and maintain nitrogen balance. Blood plasma, although useful, is expensive even when processed by governmental agencies and distributed to hospitals for civilian use. Dried plasma, as purchased from commercial houses, is exorbitant in price (\$35.00 for 250 cubic centimeters). The solutions of amino acids may be substituted for plasma when the plasma is used as a source of protein.

Transfusions of whole blood when administered in 500 cubic centimeter doses will supply 18 grams of plasma protein, 75 grams of hemoglobin, prothrombin, fibrinogen and immunity factors, vitamins, electrolytes, glucose, and other factors. This explains why blood was found so valuable in the postoperative recovery of patients before plasma and amino acid solutions were developed. Besides the ingredients noted above, whole blood restores circulating volume, prevents shock, preserves tissue protein, and offers some resistance to development of wound infections.—Merle J. Brown M.D., Davenport—*Journal of Iowa State Medical Society*.

Surgery of the spleen.—John A. Duncan, M.D. writes as follows:

"In view of the fact that surgery of the spleen is often of an emergency nature, a working knowledge of splenic anatomy, function and surgical technic is essential. A familiarity with the pathologic and functional changes, for which elective surgery is indicated, is also of value.

The spleen normally lies in a rather inaccessible and well protected position within the thoracic cage, its outer convex surface in contact with the diaphragm. Its inner convex surfaces are in apposition with the stomach, pancreatic tail, kidney and colon. Support is afforded by the lienorenal and gastrosplenic peritoneal ligaments and their reflections to the diaphragm. Blood supply is derived from the celiac axis via the splenic artery which divides at a variable distance from the spleen, sending its several branches into the hilum along a line extending almost the entire length of the organ. Blood leaves the spleen through veins which have a similar arrangement. Hence, inclusion of all these vessels in one ligature during the course of splenectomy is often unfeasible and multiple ligations are to be preferred.

The contractile ability of the spleen is due to an extensive amount of smooth muscle present in its outer elastic coat and in the fibrous trabeculae which form the framework of the organ. A reticular network supports the pulp. The latter has three chief components. The lymph follicles, or Malpighian corpuscles, surround small arteries. The reticulo-endothelial cells lie fixed in the fibrous network or free in the pulp. The pulp cords, forming the bulk of the spleen, consist of concentrations of formed blood elements and mobile reticuloendothelial cells. The cords communicate freely with blood vessels.

There is much about splenic function which is not understood. Three phases, however, are fairly well established, the manufacture of lymphocytes, the storage of blood which is released to the general circulation on physiologic demand and the action of the reticuloendothelial cells. The latter phagocytose bacteria and other foreign materials, produce the final destruction of red blood cells and convert hemoglobin into bile pigment and iron.

Thus far surgery of the spleen has been almost entirely restricted to splenectomy. It does not appear to be an essential organ to health and well being and effects of its removal in a normal person are mild and transient. A moderate secondary anemia results which usually disappears within a year. There is an increased resistance to hemolytic agents. The platelet count may increase to one million or more, returning to normal in a few days. Severe or late effects are rare.

Due chiefly to clinical experience, splenectomy has been discarded as effective treatment in many conditions where it was formerly employed. Its chief indications at present are in rupture of splenic tissue, impairment of blood supply, hemolytic jaundice, thrombocytopenic purpura and splenic anemia. Sometimes splenectomy is necessary or convenient in the course of other operations such as total gastrectomy, repair of a diaphragmatic hernia or in surgery of the pancreas. Occasionally it is indicated in such conditions as Gaucher's disease and malaria. Whipple has recently employed splenectomy as a preliminary to an anastomosis between the splenic and left renal veins, a portacaval shunt, in treatment of portal hypertension.

Direct or indirect trauma may produce rupture of splenic tissue or a tear of the pedicle, resulting in massive hemorrhage. Severe bleeding may occur immediately or several hours or days later. Early surgical treatment is usually indicated. Contractility and friability of the organ render suture of parenchyma unfeasible and splenectomy is as a rule preferable. Such a procedure is imperative where the blood supply has been compromised.

In most cases of hemolytic jaundice splenectomy gives excellent results. Splenomegaly, increased erythrocytic fragility, anemia and jaundice are the chief manifestations. Red blood cell destruction is so extensive that bilirubin is formed faster than the liver can excrete it. Crises may occur, during which there are fever, weakness, abdominal pain and increased splenic enlargement.

True thrombocytopenic purpura likewise shows improvement or cure after splenectomy. This disease is characterized by a low platelet count, lack of clot retraction, prolonged bleeding and normal coagulation times. Subcutaneous or submucous hemorrhages may occur spontaneously or as the result of trivial trauma. Exacerbations and remissions are usual. Splenectomy is preferably performed during a quiescent period.

While splenectomy is of value in some cases of splenic anemia, particularly those treated early, the instances in which a cure is effected are infrequent. In the late cases the high mortality and poor results discourage this treatment. Common manifestations of this condition are splenomegaly, secondary anemia and varying degrees of hepatic damage. Later hepatic cirrhosis and portal hypertension with their usual accompaniments may become evident. The

etiology and exact nature of this syndrome remain unknown.

Preparative treatment prior to splenectomy depends upon the nature of the condition for which operation is to be performed. In traumatic rupture with massive hemorrhage the prime objective is early and rapid control of shock, blood transfusion being most efficacious. Delay in waiting for blood may allow extreme exsanguination in some instances. Rapid splenectomy with control of hemorrhage, in spite of the poor condition of the patient, may be indicated. Auto-transfusion is often of value in these cases.

Blood transfusions preceding splenectomy are likewise indicated in most cases of thrombocytopenic purpura and splenic anemia. On the other hand, it may be unwise to give blood unless urgently needed prior to operation for hemolytic jaundice. The damaging effect of increased hemolysis must be considered. Effort should be made to combat hepatic insufficiency preliminary to operation for splenic anemia. High protein and carbohydrate intake and indicated vitamins are of particular importance.

Choice of the anesthetic for splenectomy depends upon the condition of the patient, the preference of the surgeon and the competence of the anesthetist. Spinal anesthesia gives desirable relaxation but is poorly tolerated in shock and must extend quite high to permit painless manipulation in the splenic area. General inhalation anesthesia probably receives most extensive use in this operation.

In some cases splenectomy can be carried out with ease, in others it is fraught with extreme difficulties and dangers. Marked splenomegaly, vascular perisplenic adhesions, fat deposits in the suspensory ligaments and pedicle, portal hypertension with enormous distension of the splenic vein and tributaries are technical hazards. Certain operative precautions and safeguards facilitate performance of the operation in these instances.

An adequate incision is essential. Lack of excellent exposure and accessibility may lead to a fatal technical error. With regard to the transthoracic or transabdominal approach, both have their merits and proponents. Operation through the abdomen, however, appears likely to continue in popular favor. The left paramedian, rectus splitting, "L" and subcostal incisions receive most extensive usage, modified by the preference of the surgeon and the build of the patient.

In the absence of marked splenomegaly and perisplenic adhesions, the organ can be delivered into the wound and the gastrosplenic ligament is then divided at the line of its reflection onto the kidney. After freeing the tail of the pancreas, the pedicle is divided from below upward between clamps. In some instances the pedicle may be ligated en masse. Care must be taken to avoid including the pancreas or stomach wall in the clamps or ligatures. Preliminary decompression of the stomach is wise.

In the presence of marked splenomegaly, opening of the lesser peritoneal sac and

preliminary ligation of the splenic artery at the superior border of the pancreas are of value. This is not only a partial safeguard against hemorrhage during the course of splenectomy but promotes evacuation of blood from the spleen into the general circulation and diminishes the size of the organ. This diminution is likewise effected by injection of adrenalin directly into the splenic tissue.

Occasionally the convex outer and upper surface of the spleen is so densely adherent to the parietal peritoneum that blunt dissection through this area during mobilization results in tearing off pieces of splenic tissue and worrisome hemorrhage. It is in this situation that Rives' method of displacing the spleen medially, incising the parietal peritoneum anterior to the adherent area, and separation of this peritoneum from the lateral abdominal wall while still attached to the spleen, has its value.

Postoperative blood transfusions are necessary in most instances of splenectomy. The usual precautions should be taken to prevent respiratory complications. Post-operative abdominal distention is occasionally bothersome and requires therapy. Another occasional complication following surgery of the spleen is splenic, portal or mesenteric thrombosis. If such a condition is suspected, the administration of one of the anticoagulants would appear indicated.

The general mortality of splenectomy has always been rather high. Emergency surgery during hemorrhagic shock and elective surgery in debilitated, poor risk patients have largely been responsible. There is no doubt, however, that technical errors have made considerable contribution. Hence, one undertaking such surgery should be thoroughly versed in splenic anatomy and in the technical precautions which will keep the mortality and morbidity of such operations at a minimum.

—North-West Medicine.

Circulation in penetrating wound of chest.—Merrill and his associates collected quantitative hemodynamic data on 13 patients with penetrating wounds of the chest. Four of these patients had no evidence of circulatory difficulties, while 9 did. The studies on those without circulatory difficulty gave values which were similar to those in normal subjects. The 9 patients who had circulatory insufficiency showed hypotension, a low peripheral resistance, a relatively normal cardiac output and a normal right arterial pressure. The clinical picture of patients with penetrating wounds of the pleura is similar to that presented by patients with acute blood loss from multiple lacerations. The hemodynamic data differ in several important ways in the two groups. Patients with simple acute blood loss and a systolic arterial pressure below 100 mm. of mercury usually have a diminished cardiac output, a low arterial pressure and an elevated peripheral resistance. When the blood volume is increased by therapy a decided rise in cardiac output occurs. In the patients with knife wounds of the pleura

the cardiac output was relatively normal in spite of the sharp fall in arterial pressure and did not increase greatly when the blood volume was raised. The arterial pressure was not decreased and the peripheral resistance was lowered. The circulatory failure in patients with penetrating wounds of the pleura appeared to be primarily the result of arteriolar dilation.—J.A.M.A.

Varicose ulcers:—In treatment one must recognize the importance of the gravitational reflux, and, although ulcers and the surroundings may become infected, this is usually of secondary importance. Absolute rest in bed with the limb elevated will invariably secure rapid healing in the absence of serious bone involvement and almost irrespective of the nature of the local applications. Recurrence, however, is likely.

EYE, EAR, NOSE & THROAT

The running ear.—If the practitioner sees a case of acute otitis media early enough, with only injection of the drum and no marked bulging, the condition may settle with the administration of Sedodan drops, no heat being applied to the ear. If, however, the temperature is above 99 deg. F., and the membrane has already started to bulge, and there is generalized mastoid tenderness, a paracentesis should be done under general anesthesia, ear drops of 2 per cent. glycerine acid carbol inserted into the ear every four hours, and heat, preferably by infra-red rays, or a hot pad applied to the ear. If the paracentesis has been done timeously, frank pus should only appear from 12–24 hours after operation, but the temperature should be completely settled in 48 hours, and the general condition much improved. It is important that the ear be cleaned out with cotton wool as often as discharge appears at the meatus, and this may require to be done every two hours, the drops being changed on the third day to boric spirit. Penicillin locally is useful if the organism obtained at the paracentesis is sensitive. With this treatment the ear should dry within ten days, but the treatment should be continued if the ear is not dry up to three weeks. If after this time the ear is still discharging profusely, the nose and throat should be examined for a septic focus, and, if necessary, the tonsils and adenoids removed, and any infection in the paranasal sinuses dealt with. On inspection, however, through an auriscope, after thorough cleaning, it may be noticed that the drum is still red and sodden, that there is a postero-superior nipple-shaped perforation present, and that there is some sagging downwards of the postero-superior meatal wall and patchy tenderness of the mastoid area. It is then practically certain that mastoid infection is present, and this will be confirmed by the decalcification seen in the cell walls on X-ray. In this case the ear will not dry until a cortical mastoidectomy is performed. It is useless to wait longer as the individual's hearing will diminish with every day's delay. Sometimes, of

unless the incompetent veins are either controlled by elastic stockings or obliterated by means of injections or operation. In some cases healing may be obtained by one of the various types of compressor bandage. If permanent healing is to be secured in cases of long standing ulceration, with a good pigmented scar free from tenderness and oedema, then almost all cases must be submitted to operation, as incompetent thigh veins are invariably present. Since the role of infection in varicose ulcers is relatively unimportant, it would appear that penicillin or chemotherapy is likely to be of little use. These may reduce infection but will not cure varicose ulcers. On the other hand, if the gravitational factor is overcome the ulcers will heal almost irrespective of the local application.

—B.M.J. Aug. 3, 1946.

course, there is no doubt clinically, that acute mastoiditis has supervened because of the recurrence of the general symptoms and the otoscopic findings mentioned above. The sulphonamide drugs should on no account be used in the course of the illness, as it is always uncertain if the focus is being completely drained. When the ear is dry and the membrane healed, the hearing should be tested, and, if necessary, inflation of the middle ear carried out.—John Gerrie, M.B., F.R.C.S.E.—*Medical World*.

Proper and improper administration of oily nasal sprays. B. L. Griesman. *Arch. Otolaryng.* 30: 124 (Feb.) 1944.

A careful roentgenographic study made to determine the mechanism of the transmission of intranasally sprayed oils from the upper to the lower respiratory tract in apparently normal persons from 6½ to 66 years of age yielded conclusions as follows:

1. Healthy persons, irrespective of age, might aspirate oil (primarily when sprayed) even in therapeutic dosage if the oil is improperly administered.
2. The presence or the absence of tonsils and adenoids and the use of a 1 per cent solution of an ephedrine salt prior to the administration of oil apparently do not increase the danger of oil aspiration.
3. Scarring in the tonsillar beds and injury to the posterior pillars after tonsillectomy tend to increase the danger that oil will be aspirated if the oil is incorrectly administered.
4. Oil is carried downward by the force of gravity.
5. The decisive factor of safety or danger is the position in which the head is held during and after the administration of oil. The danger begins and increases with the size of the angle of the backward inclination of the head. There is no danger when the head is held straight or bent forward, even when massive doses many times the normal therapeutic dose are employed. The factor of safety increases with the size of the angle of the forward inclination of the head.

—E.E.N.T.M.

OPHTHALMOLOGY

Penicillin in ophthalmology.—Parry, T. G. W., Laszlo, G. C., and Peniston, J. L. *Brit. Jour. Ophth.*, 1945, v. 29, Sept., pp. 479-485.

The experiences of the authors in the use of penicillin in a country hospital are presented.

Solutions of more than 100 units per cubic centimeter retained their potency for many weeks in the refrigerator and for at least a fortnight at room temperature.

Solutions were applied as follows: (a) In acute conjunctivitis with secondary corneal ulcers, instillations of penicillin (250-500 units per cubic centimeter) into the conjunctival sac were made every two hours during the day and night for 72 hours and after this period, during the day only. Signs of improvement were observed after two or three days with complete cure in five to seven days.

(b) In four cases of serpent ulcer of the cornea instillations of a solution of 1,000 units per cubic centimeter were made into the conjunctival sac. The solution was instilled every two hours during the day and night for five or six days and then continued in the daytime only. The treatment was combined with irrigation of the lacrimal passages with a solution of 250 units per cubic centimeter twice daily. Cure was obtained in 10 to 14 days. Hypopyon was present in all cases.

Two cases of gonococcal ophthalmia were treated in a similar manner. All discharge of pus ceased in three days, and complete cure ensued in one week. There was no corneal involvement in either case.

(c) A concentrated solution of penicillin was used in a case of penetrating wound of the sclera before it was sutured. The wound healed in five days without any evidence of infection; but a low-grade iritis supervened, and the eye was removed, owing to the risk of sympathetic ophthalmia.

Two cases of endophthalmitis, one, a part of a pneumococcal pyemia and the other a perforating injury previously treated outside the hospital, were treated with penicillin solution. In the first case, that of a patient aged 78 years, 10,000 units per cubic centimeter were applied to the anterior chamber through a keratome incision on two successive days. Then systemic penicillin was used; but hypostatic pneumonia developed, and the patient died. The eyeball was full of pus.

The second patient had three applications

of 20,000 units per cubic centimeter of penicillin installed into the anterior chamber. He was also given an intravenous injection of T.A.B. vaccine. The hypopyon was syringed out of the anterior chamber with the penicillin solution but enough of the solution was left to maintain the anterior chamber. Complete cure was obtained in ten days.

(d) Injection into the tissues was carried out in all cases of acute dacryocystitis where there was no definite abscess formation and in cases of minor suppurative lid affections. Solutions of 1,000 units per cubic centimeter were used, and cures were obtained in 24 to 48 hours. This method should be applied only after injection of two to four per cent. novocaine without adrenalin.

(e) Irrigation with a solution of 250 units per cubic centimeter of penicillin in the after treatment of an abscessed dacryocystitis after the abscess had been opened.

Creams.—The application of cream seems to be the only satisfactory method for outpatient treatment. A standard strength of 250 units per gram in a 4-gram tube can be kept at room temperature for a period of about three weeks.

Typical cases in which penicillin cream was used are as follows: (1) acute conjunctivitis with or without corneal ulcers; (2) marked ectropion with severe chronic infection of the conjunctiva; (3) blepharitis; (4) recurrent styes; (5) eversion of the lacrimal punctum.

In acute conjunctivitis complete cure was obtained in eight to twelve days with application of penicillin cream in the conjunctival sac every four hours. Improvement occurred after the third day.

Recurrent styes respond excellently to penicillin treatment.

Interrupted treatment was most satisfactory in cases of chronic blepharitis. Application was used three times daily at first and after a 10-day interval twice daily.

Two patients with hypopyon ulcer who refused hospitalization were treated with penicillin cream at intervals of three hours. Both were cured in three weeks.

Powders of 2,000-units-per-gram potency were used in some cases of corneal ulcer and acute dacryocystitis after incision. Penicillin powder applied to the conjunctival sac is a very satisfactory method of treating torpid ulcers.—*American Journal of Ophthalmology*.

OBSTETRICS and GYNÆCOLOGY

Caudal anesthesia in obstetrics.—E. Gerald Layton, M.D., writes as follows:
Since the advent of twilight sleep with its early rise and fall of fame and eventual modifications that have mellowed and weathered with time, few obstetric procedures have

been seized upon by the lay press with such dramatic acclaim as has been accorded to the advent of continuous caudal anesthesia. The obvious relief of pain throughout a period that all women enter with considerable amount of fear and expectation, the

lack of exhaustion or postanesthetic symptoms when the women return to her room after delivery, fully awake and in a delighted mental attitude and the excellent condition of the baby from the minute it enters this world have made this embryonic surgical procedure through literary salesmanship a panacea to expectant mothers.

The distortions and misrepresentations of this literary salesmanship and the need of deflating enthusiasm with caution have made the physician develop a reactionary defence against a procedure that has aroused such publicity in its developmental stage. My own reaction on embarking upon a series of deliveries under continuous caudal anesthesia was with considerable scepticism that was soon erased by enthusiasm for the excellent results obtained as the technic better became known in my hands.

My own experience with caudal anesthesia developed in 1943 and 1944 while assigned as obstetrician at an army hospital near Salt Lake City, where Holy Cross Hospital was used in our care of military dependents. At the same time that my interest was aroused, one of Salt Lake's obstetricians began adapting the procedure to his private practice in the same institution, making it possible to train one obstetric nurse in the special supervision of patients during caudal anesthesia, thus relieving us and the resident staff of constant attendance during labor. This arrangement worked without mishap except that my part in this adventure was stopped by my abrupt departure to the Southwest Pacific in the fall of 1944. I was, however, able to utilize my knowledge with a caudal set I had with me, when I found myself delivering babies for released internees at Santo Tomas University in Manila during the early days of the liberation of that area.

Caudal anesthesia has been used in surgery since first described in 1901. It was applied to obstetrics for the relief of pain during delivery as early as 1911, and has been a well known and accepted form of regional anesthesia for the many years since the date. The intent of Hingson and Edwards was to modify caudal anesthesia so that it might be started in the earlier stages of labour and continued until the completion of the third stage, thus adapting to all stages of labour a relatively safe and simple technic for relief of pain that did not interfere with the motor nerve fibers to the uterus of accessory skeletal muscles which play a part in the voluntary expulsion of the baby.

Continuous caudal anesthesia should be started only when a patient is actually in labor and distress. As the full desired effect is difficult to maintain after six to eight hours, best results are secured when the contractions are regular, four to five minutes apart, and at least of thirty seconds duration in primiparae. In multiparae with histories of rapid deliveries, the procedure should be instituted early. In properly

selected induction cases it may be instituted prior to the surgical rupture of the membranes, thus relieving the patient of the discomfort of this procedure and offering the obstetrician convenient perineal relaxation.

The proper insertion of the needle is the basis of success or failure of the procedure. In rare cases, with the needle properly in place as evidenced by saddle anesthesia, with perineal relaxation, it is not possible to raise the level of analgesia sufficiently high to obtain complete relief of pain. However, in our hands, practically all failures were considered the result of improper placement of the needle.

My experience has been limited to the use of the 19 gauge, 2.5 or 3 inch special malleable stainless steel needle that it was our rule to discard after about five cases. Attempts to break these needles before discarding them indicated to us the rare possibility of breakage. The fact that a needle is large enough for threading a catheter is definitely more traumatic, and the added difficulty of thorough sterilization of ureteral catheters precluded the use of the catheter in our hands.

The injection of 10 c.c. of air after injection of the needle has aided greatly in determining the proper location of the needle. With the needle in the canal, air flows freely and readily from the syringe, but if the needle is deep in the tissues posterior to the sacrum, the air is more readily palpated than is fluid injected in the tissues and the passage of air from the syringe is restricted.

With the needle in place, attempts to aspirate spinal fluid or blood through the needle should be made. If the dura has been punctured and spinal fluid obtained, no further attempts at caudal anesthesia should be carried out. The danger of inter-spinal injection can further be minimized by using a trial dose of 8 c.c. of anesthetic solution and delaying further action for ten minutes to insure that low spinal anesthesia does not ensue. Withdrawal of blood through the needle indicates that it has pierced a vessel in the highly vascular peridural space. In this event the needle should be readjusted until no further blood is noted and then the initial test injection cautiously given.

Most patients manifest a falling blood pressure, varying in degree. Thus, a close watch should be kept on the blood pressure throughout the early stages of labor. A drop in the systolic pressure below 90 m.m. is indication for the administration of ephedrine products, as a prolonged drop in systolic pressure below this level will produce fetal distress and possible permanent damage to the infant. Our observation of cases with toxic hypertension under caudal anesthesia was gratifying. A drop in pressure to a relatively normal was noted along with amelioration of symptoms during the

course of the anesthesia. This improvement persisted after delivery to a varying degree. Other men have reported similar findings but a sufficient number of cases has not been reported for any definite conclusions.

As all bladder urge is lost, it is necessary to catheterize all patients at regular intervals during the progress of labor.

Caudal anesthesia is contraindicated in cases with hypotension because of the coincident drop in blood pressure, and in placenta previa and marginal placenta because of marked early cervical relaxation. As with local anesthesia in other conditions, it should not be used in patients of unstable mental balance, in cases of marked obesity or with patients with marked anomalies. It should definitely not be used in cases of expected monsters or contemplated morcellation procedures for obvious reasons. Pilonidal cysts, furunculosis or other saprophytic infections of the skin preclude the use of caudal anesthesia.

If the above cautions are observed and proper surgical technic is carried out to avoid introduction of infection into the caudal canal, it is my belief that future mortality figures will be reduced to the low level of other time tested forms of analgesia and offer the additional advantages of this new method to future mothers.

Advantages of continuous caudal anesthesia are many. Labor is dramatically painless and the patient may enjoy radio, read or sleep, and as she retains all her normal facilities, she is able to keep up a normal intake of fluids and foods. Further, the need of guarding the patient against injuries, such as occur under scopolamine, is done away with.

As no supplementary anesthetic is needed during the second and third stages of labor, this method is of great value in those cases where undue exertion or general inhalation anesthesia are contraindicated as in tuberculosis, pneumonia, upper respiratory infections and in certain cardiac conditions. Risk of maternal inspiration asphyxia and other dangers of inhalation anesthesia are eliminated.

Relaxation of the perineal musculature and the cervix without inhibition of uterine tone or contractions shortens the first stage of labor. Due to the loss of pain, there is no desire to push and the accessory muscles

used in forceful expulsion are not brought into play unless the patient is specifically directed to do so, and the second stage of labor is prolonged. In the hands of men using routine outlet forceps and episiotomy, this is not a disadvantage but actually an advantage in avoiding the danger of precipitation and eliminating the hurry and bustle that is associated with precipitous deliveries. With the head on the perineum, proper technic and preparation of the patient may be carried out in the delivery room without haste.

Relaxation of the perineal musculature lessens the moulding and trauma to the baby's head, and with freedom from narcosis the vital mechanism of the child is not suppressed nor injured and resuscitation is rarely indicated. In fact, most babies attempt to breathe before the shoulders are delivered and it becomes imperative to promptly clear the mouth and nose of the child as soon as it passes over the perineum to avoid inspiration of mucus or amniotic fluid. Because of this special protection to the baby, this method is one of the greatest advancements in the care of the premature infant. This relaxation, too, is of great benefit in facilitating breech extractions and deliveries.

The anesthesia and relaxation of the anal orifice and rectum, coincident with this procedure, markedly enhances rectal examinations during labor and removes all discomfort from such examinations. Because of the uninhibited uterine tone, uterine bleeding is minimized and expulsion of the placenta facilitated. The steady progress of labor, free from traumatic expulsive forces reduces postpartum complications to a minimum.

The most frequent criticism of continuous caudal anesthesia is its questionable safety, not for the baby but for the mother, whose life can be jeopardized by errors in technic or carelessness in not observing necessary precautions. It is also evident that the obstetrician or anesthetist must be present at the proper time in early labor to institute the procedure. I am convinced, however, that, with the patient surrounded by proper safeguards and in competent hands, the mother and child can be offered a safe and markedly superior analgesia and anesthesia during all stages of labor without too great additional expenditure of time and energy by the attending physician.—North Western Medicine.

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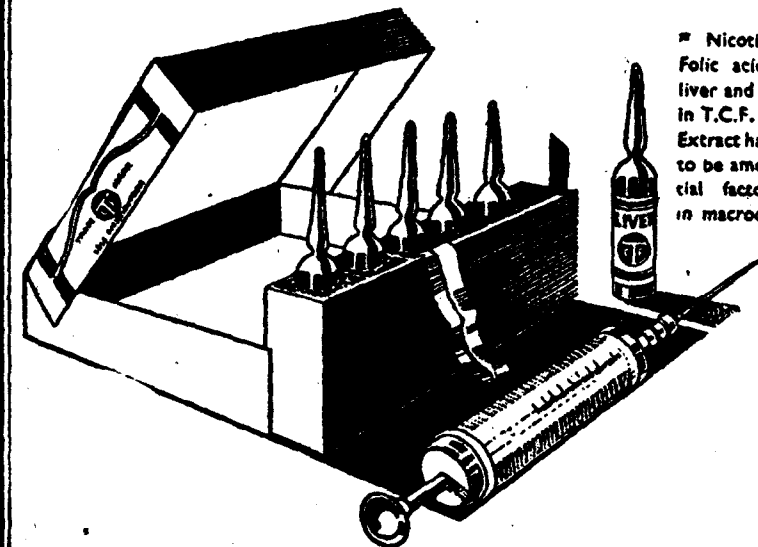
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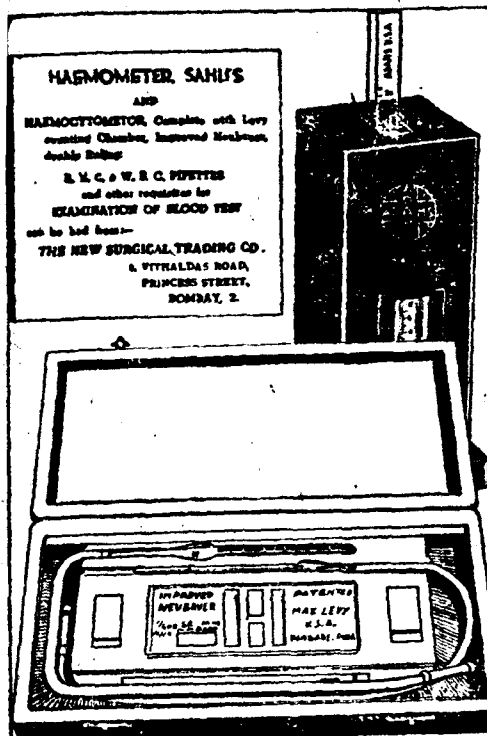
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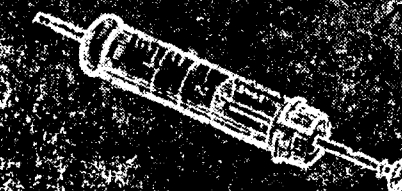


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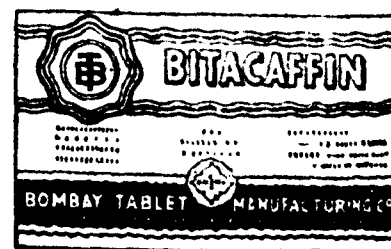
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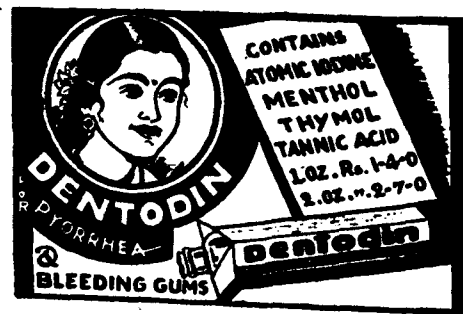
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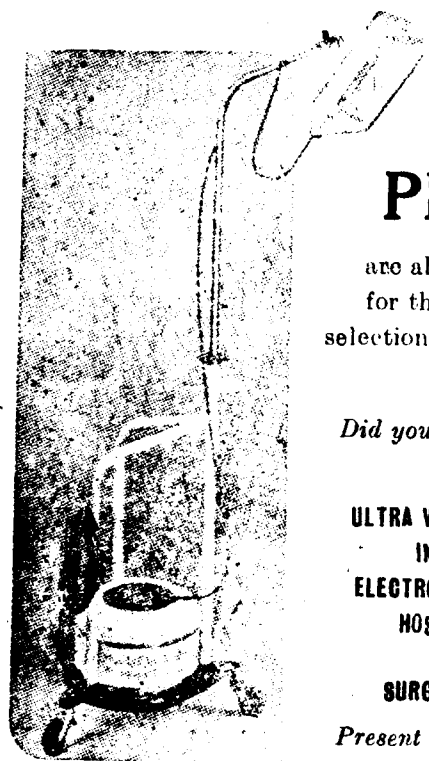
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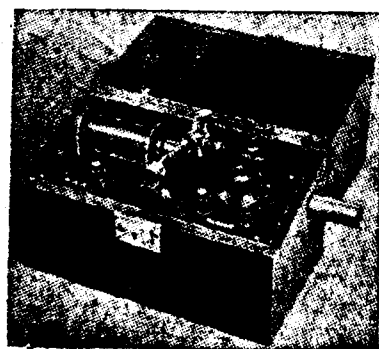
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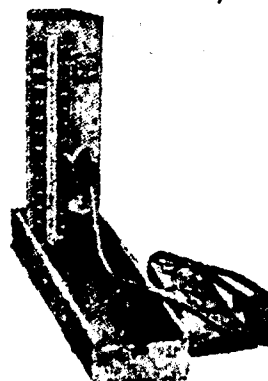
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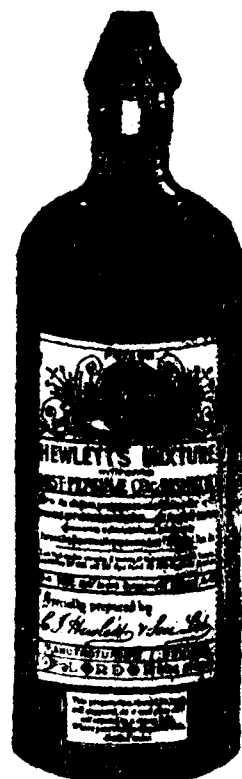
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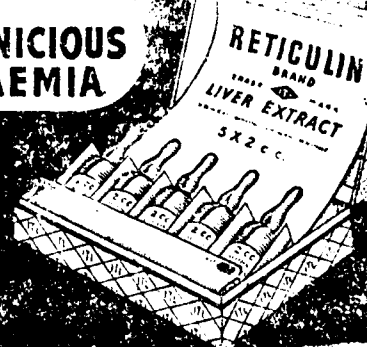
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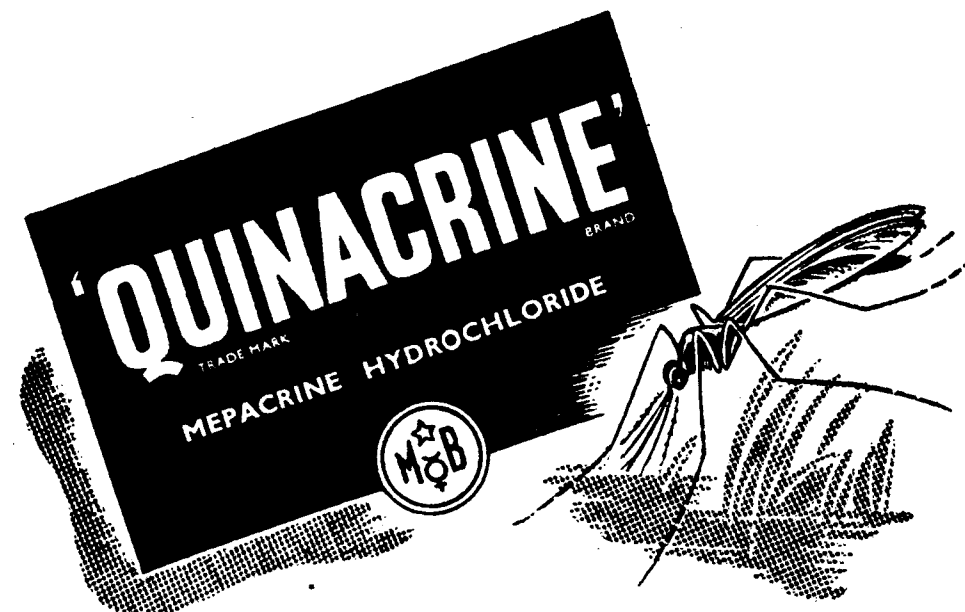
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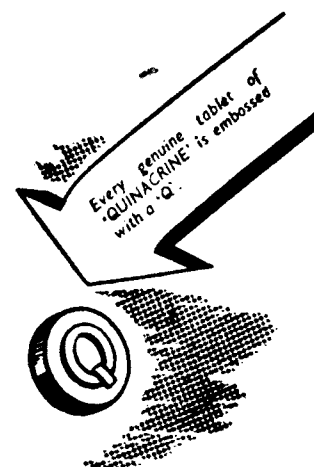
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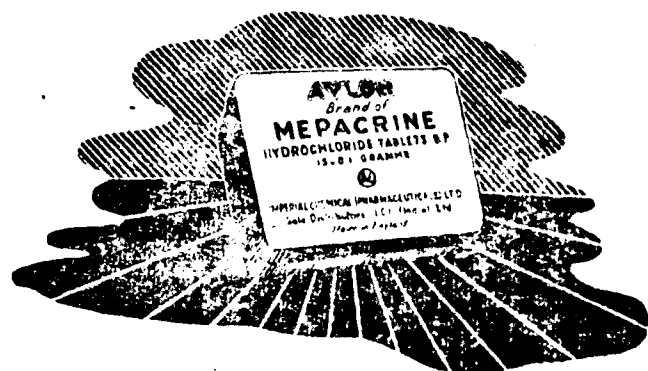
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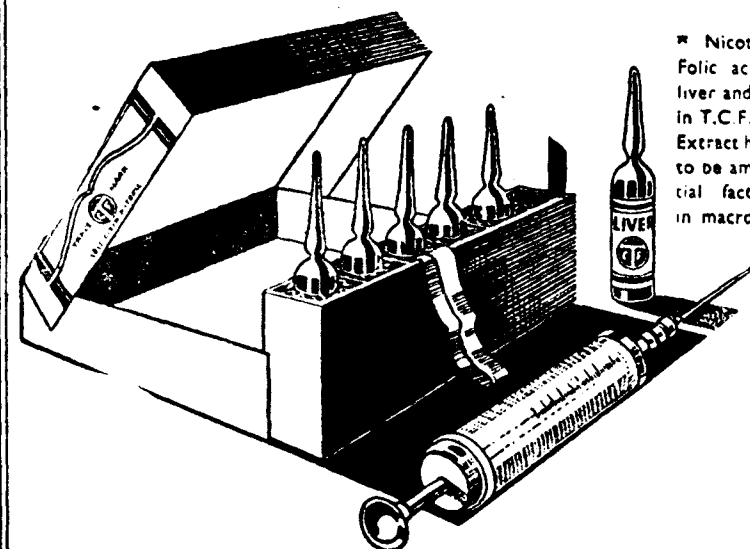
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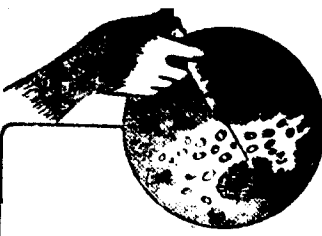
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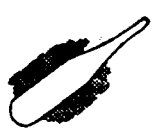
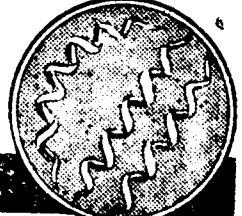
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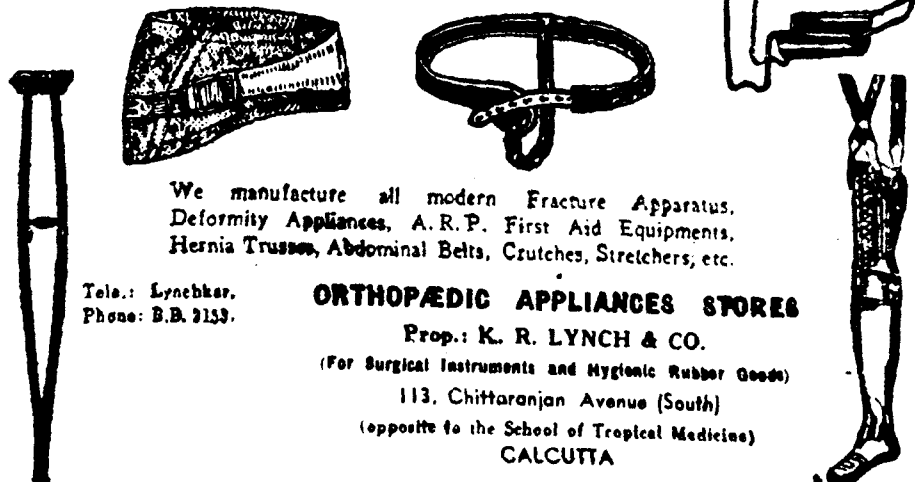
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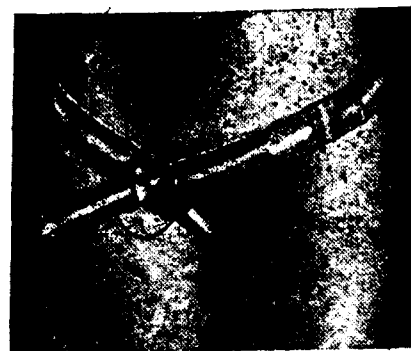
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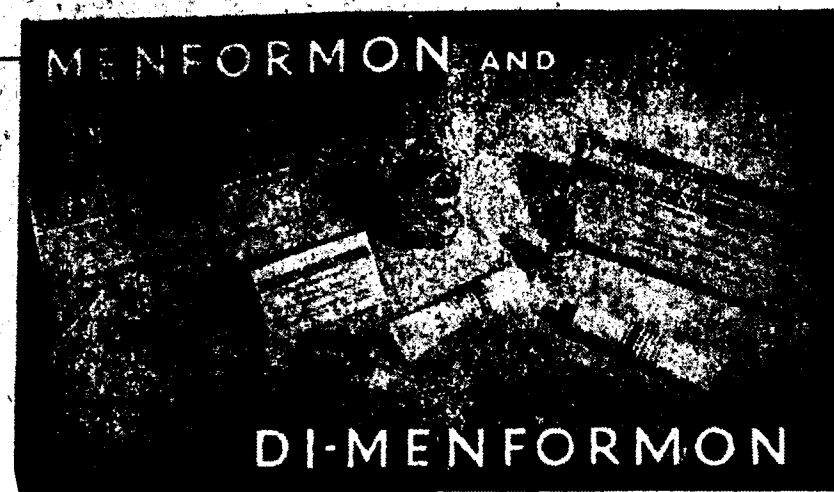
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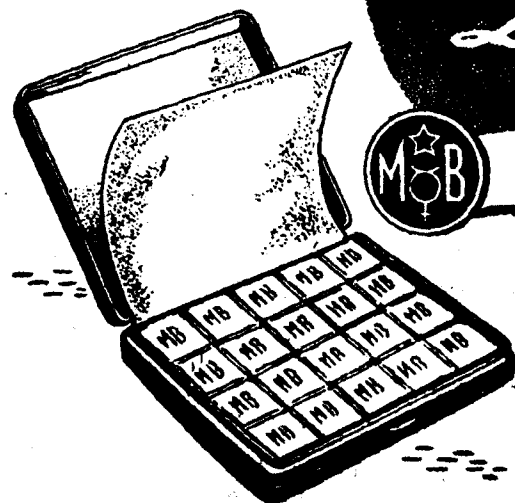
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Original Articles

Studies on the Administration of Vitamin C and Yeast on Urinary Excretion of Ascorbic Acid in Normal and Tuberculous Subjects*

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SINCE HOJER (1924) and BIELING (1925) showed that the ascorbutic state increases susceptibility to tuberculosis more attention has been directed to the role of vitamin C in this disease. In analysing the literature on this vitamin, PERLA and MARMORSTON (1937) recognised the favourable effect of vitamin C on increasing resistance to tuberculosis and attributed it to the part this vitamin plays in the oxidation-reduction processes, in cellular metabolism and in the production of the intra-cellular cement substance. In addition RAI and KEHAR (1944A) found that vitamin C exercises a favourable influence on the assimilation of calcium. Subsequent reports have indicated that tuberculosis itself depresses the vitamin C content of the blood and tissues. SWEANY ET AL (1941) pointed out that the severity of tuberculosis is paralleled by the "exhaustion" of vitamin C in the body fluids and that a large supplementary intake of vitamin C is necessary to restore the normal level. BANNERJEE ET AL (1941) suggested that low excretion of vitamin C in the urine of tuberculous subjects may be due to its combination with toxins and toxic metabolites.

In view of the significant effect of vitamin C upon tuberculous conditions, it was considered desirable to study the urinary excretion of vitamin C in normal and tuberculous subjects under different Indian dietary conditions, and to determine whether certain food factors exert a vitamin C sparing action.

Methods and material.—The patients selected for these observations were men and women of different ages living under ordinary urban conditions. They were regularly visited and treated in their respective homes. The chief symptoms shown by the subjects were pyrexia, anorexia, toxæmia and distressing cough with occasional hemoptysis and diarrhoea. They

* Specially contributed to THE ANTISEPTIC.

† Research Scholar.

were divided into 4 groups. Each group contained also a similar number of apparently healthy persons approximately identical in age and social and economic status.

The subjects of the first group lived on an average quality diet without citrus fruits, whereas the diet of the second group included lemon and spinach and that of the third and fourth groups was supplemented with ascorbic acid (single dose of 500 mg.) and ascorbic acid and yeast respectively.

Urine collections were made for 24 hours in Winchester amber-coloured bottles containing 100 c.c. of concentrated sulphuric acid mixed with 100 c.c. of water as a preservative, as suggested by BANNERJEE ET AL (1941) who found it superior to other preservatives. Ascorbic acid was estimated by titration against 2:6-Dichlorophenol Indophenol in the usual way. In the case of groups 3 and 4 the estimations were made once before the administration of the massive dose of Ascorbic acid and twice on two successive days thereafter.

Results and Discussion.—The results of the urine examinations of normal and tuberculous subjects for vitamin C (group I) are given in Table I. It will be observed that, whereas the diet in both the cases was

TABLE I
Urinary excretion of vitamin 'C' in normal persons on an average diet.

Serial No.	Name	Age	SAMPLE I		SAMPLE II		REMARKS
			Quantity of urine passed in 24 hours	Vitamin 'C' excretion in 24 hours	Quantity of urine passed in 24 hours	Vitamin 'C' excretion in 24 hours	
1	R.R.C.	24	1,300 c.c.	36.4 mg.	1,000 c.c.	38.0 mg.	Diet: Wheat bread, pulse, milk and vegetables.
2	D.C.	24	1,200 c.c.	28.8 mg.	500 c.c.	20.0 mg.	Do.
3	D.R.	20	900 c.c.	16.2 mg.	900 c.c.	25.2 mg.	Do.
4	B.S.	24	1,000 c.c.	20.0 mg.	600 c.c.	20.4 mg.	Do.
5	K.B.	28	1,200 c.c.	36.0 mg.	1,100 c.c.	33.0 mg.	Do.
6	H.R.	20	1,300 c.c.	30.0 mg.	500 c.c.	25.0 mg.	Do.
Average ...				29.4 mg.		26.9 mg.	

Urinary excretion of vitamin 'C' in cases of pulmonary tuberculosis.

1	D.	38	780 c.c.	15.0 mg.	700 c.c.	14.1 mg.	Do.
2	B.D.	34	990 c.c.	19.8 mg.	1,000 c.c.	25.0 mg.	Do.
3	M.S.	20	575 c.c.	9.2 mg.	600 c.c.	16.2 mg.	Do.
4	G.	16	800 c.c.	16.0 mg.	1,000 c.c.	14.0 mg.	Do.
5	J.R.	24	1,000 c.c.	18.0 mg.	500 c.c.	20.0 mg.	Do.
6	F.R.	28	1,200 c.c.	14.4 mg.	900 c.c.	18.0 mg.	Do.
Average ...				15.4 mg.		17.9 mg.	

identical, the average daily excretion was lower in those affected with tuberculosis. These observations are in conformity with those of HEISE and MARTIN (1936), JETTER and BUMBALO (1938), SINGER and VAN BARK (1938), BAKSH and RABBANI (1939), CHANG and LAN (1940) and BANERJEE ET AL (1941). It may, however, be pointed out that the average amount of Ascorbic acid excreted by normal persons in these observations is less than that shown by BANERJEE ET AL (1941). It is difficult to assess the significance of these variations in the absence of any details by BANERJEE ET AL of the dietary intake. The average intake of vitamin C of our subjects was about 15 to 25 mg. per day.

Although KELLIE and ZILVA (1939) pointed out that remarkably good health can be maintained on 15 mg. of vitamin C daily, CRANDON ET AL (1940) found that the maximal utilisation of vitamin C lies between 30 and 45 mg. per day. The Editor of the *British Medical Journal* (1942), however, considered 50 to 60 mg. daily as the normal requirement. Investigations by ORR (1936) and CRAWFORD and BROADLEY (1938) indicated that the diet of one half to three quarters of the population of Great Britain contains inadequate quantities of vitamin C. There are, of course, wide variations in the extent to which individuals will tolerate low vitamin C diets. JENNINGS and GLAZEBROOK (1938) described a man who had subsisted on a scorbutic diet for 40 years before showing any ill effects. On the other hand children have been known to develop scurvy while receiving generous supplements of vitamin C, such as orange juice.

The evidence that vitamin C exerts a beneficial effect in cases of actual illness is not conclusive. Fresh fruits and their juices and black currants have long been common household remedies for simple acute infections. Low levels of vitamin C have been found in many ailments. In some instances the vitamin C level has been found so low that it has been thought to have some aetiological significance (GLAZEBROOK and THOMSON 1942). CLAUSEN (1934), WILLSTAEDT (1935), KING (1936), WRIGHT (1936), EDDY and DALDRUP (1937), and PERLA and MARMORSTON (1937) recognised that an inadequate amount of vitamin C in the diet causes a lowering of resistance to tuberculosis. Hopes that saturation with the vitamin would cure such diseases have, however, not been realised (HEISE and STEENKEN 1939, and GLAZEBROOK and THOMSON 1942), though an acceleration of healing or a general improvement in cases of tuberculosis as the result of vitamin C administration has been claimed by RADFORD ET AL (1937), ALBERCHT (1938), BAKSH and RABBANI (1939), WARNS (1938), BIRKHANG (1939) and STEINBACH and KLEIN (1941).

While continuous saturation of the body with vitamin C may not be necessary, it was considered desirable to study the effect of an increased intake of vitamin C either from citrus fruits or pure Ascorbic acid on the excretion of Ascorbic acid in the urine and on the general condition of tuberculous subjects.

In the second group, therefore, the diet of the subjects was supplemented for about a fortnight before estimating the ascorbic acid with lemon juice and spinach which furnished about 40 to 60 mg. of vitamin C per day. It will be observed from Table II *vide page 628* that the Ascorbic acid excretion increased considerably in both the normal and tuberculous subjects, though it was proportionately more in the normal than in the tuberculous subjects.

TABLE II
Urinary excretion of vitamin 'C' in normal persons on an average diet supplemented with lemon juice and spinach.

Serial No.	Name	Age	SAMPLE I		SAMPLE II		SAMPLE III		REMARKS
			Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	
1	O. P.	26	600 c.c.	49.8 mg.	700 c.c.	70.0 mg.	550 c.c.	66.0 mg.	Diet: Wheat bread, pulses, milk and vegetables. Given lemon and spinach.
2	D. C.	26	800 c.c.	38.4 mg.	1,000 c.c.	89.0 mg.	800 c.c.	96.0 mg.	do.
3	B. S.	24	850 c.c.	70.0 mg.	600 c.c.	72.0 mg.	800 c.c.	79.2 mg.	do.
Average			...	52.7 mg.		77.0 mg.		80.4 mg.	

Urinary excretion of vitamin 'C' in cases of pulmonary tuberculosis on an average diet supplemented with lemon juice and spinach.

Serial No.	Name	Age	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	REMARKS
1	B. D.	48	1,130 c.c.	13.5 mg.	1,300 c.c.	26.0 mg.	1,100 c.c.	33.3 mg.	Diet: Wheat bread, pulse, milk and vegetables. Given lemon and spinach.
2	M. D.	16	615 c.c.	15.0 mg.	800 c.c.	32.0 mg.	800 c.c.	10.4 mg.	Anorexia. Diet: same as above. Anuria
3	N. R.	32	635 c.c.	40.1 mg.	1,400 c.c.	42.0 mg.	1,100 c.c.	32.0 mg.	Hæmoptysis on 29.7.42 and 31.7.42.
Average			...	22.9 mg.		33.3 mg.		25.2 mg.	

If, however, a massive dose (500 mg.) of Ascorbic acid is given and the excretion of this acid estimated in the urine for two successive days (group three), it will be observed from Table III *vide page 629* that the excretion level rises, but the rise is higher in the normal than in the tuberculous subjects.

These observations indicate that in tuberculous infection the body tissues remain in a state of vitamin C depletion resulting from the increased destruction of this vitamin as pointed out by BANNERJEE ET AL (1941). This state of depletion is borne out by the observations recorded in Tables II and III which indicate that in spite of feeding an optimal level of vitamin C for several days or of giving a single massive dose of Ascorbic acid, its excretion in urine in tuberculous subjects was lower than the normal.

In view of the significant role that vitamin C appears to play in maintaining the physiological integrity of the body tissues and in combating infections, an attempt was made to incorporate some food factor in the diet which might exercise a vitamin C sparing action.

TABLE III
Urinary excretion of vitamin 'C' in normal persons. Diet supplemented with Ascorbic acid.

Serial No.	Name	Age	SAMPLE I		Qty. of urine passed in 24 hrs.	SAMPLE II		SAMPLE III		REMARKS
			Quantity of urine passed in 24 hours	Vit. 'C' excretion in 24 hrs.		Qty. of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hrs.	Qty. of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hrs.	
1	R.R.	28	800 c.c.	52.8 mg.	Ascorbic acid 500 mg. B.D.H. given after first sample of urine.	700 c.c.	105.0 mg.	900 c.c.	104.4 mg.	Wheat bread, pulses, vegetables, potatoes, Ascorbic acid given after first sample.
2	B.S.	24	1,100 c.c.	55.0 mg.		800 c.c.	76.8 mg.	900 c.c.	81.0 mg.	Do.
3	K.B.D.	28	1,000 c.c.	60.0 mg.		800 c.c.	76.8 mg.	600 c.c.	76.8 mg.	Do.
4	D.B.	40	400 c.c.	24.0 mg.		400 c.c.	60.0 mg.	800 c.c.	88.8 mg.	Do.
Average			...	47.9 mg.			79.6 mg.		87.7 mg.	

Urinary excretion of vitamin 'C' in tuberculous subjects given Ascorbic acid.

Serial No.	Name	Age	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hrs.	Ascorbic acid 500 mg. B.D.H. given after first sample of urine.	Qty. of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hrs.	Qty. of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hrs.	REMARKS
1	S.B.	22	1,300 c.c.	9.1 mg.		1,340 c.c.	26.08 mg.	850 c.c.	15.3 mg.	Advanced case of tuberculosis. Diet: Wheat bread, pulses, vegetables, potatoes.
2	F.B.	30	460 c.c.	9.2 mg.		400 c.c.	12.12 mg.	450 c.c.	10.8 mg.	Anorexia. Diet: Wheat bread, pulses, vegetables, potatoes, apples only. Extreme exhaustion. Advanced case.
3	K.B.	10	430 c.c.	10.7 mg.		800 c.c.	22.4 mg.	300 c.c.	12.0 mg.	Anorexia and diarrhoea. Advanced case. Diet: same as above.
Average			...	9.7 mg.			20.2 mg.		12.7 mg.	

In group IV, therefore, the diet of both the normal and the tuberculous subjects of group III was supplemented with yeast. The feeding of yeast* (15.6 gm. per day containing about 125 I. U. of vitamin B) was started three days before the first estimation of Ascorbic acid was made. It will be observed (Table IV *vide page 630*) that the Ascorbic acid excretion was 27.5 mg. prior to administering a massive dose (500 mg.) of Ascorbic acid and 76.4 and 91.2 on the two successive days in normal subjects as compared with 17.5, 31.9 and 29.8 respectively in tuberculous subjects. It will be seen that the excretion of ascorbic acid is more satisfactory in this group of subjects than in the third group where the diet contained an enhanced amount of vitamin C. It seems that the yeast modifies the internal functions

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of the body tissues in such a manner that the destruction of vitamin C is reduced.

TABLE IV.

Urinary excretion of Vitamin 'C' in normal persons on an average diet supplemented with Yeast and Ascorbic acid.

Serial No.	Name	Age	SAMPLE I		Vitamin C administered.	SAMPLE II		SAMPLE III		REMARKS
			Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours		Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	
1	D.R.	20	800 c.c.	24.0 mg.	Ascorbic acid 500 mg. administered.	700 c.c.	70.0 mg.	1000 c.c.	112.0 mg.	Wheat bread, vegetables, pulse and milk. Yeast given 3 days before and Ascorbic acid after 1st sample.
2	H.R.	26	700 c.c.	22.4 mg.		1000 c.c.	80.0 mg.	900 c.c.	81.9 mg.	do.
3	O.P.	26	900 c.c.	36.4 mg.		800 c.c.	79.2 mg.	800 c.c.	80.6 mg.	do.
Average				27.5 mg.			76.2 mg.		91.5 mg.	

Note.—Ascorbic acid given after 1st sample. Yeast started 3 days earlier.

Urinary excretion of Vitamin 'C' in tuberculous subjects given Yeast and Ascorbic acid 500 mg. (after 1st sample of urine).

Serial No.	Name	Age	SAMPLE I		Vitamin C administered.	SAMPLE II		SAMPLE III		REMARKS
			Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours		Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	
1	K.A.	24	960 c.c.	24.0 mg.	Ascorbic acid 500 mg. administered.	1,150 c.c.	41.4 mg.	800 c.c.	20.0 mg.	Wheat bread, vegetables, pulse and milk.
2	P.D.	16	540 c.c.	14.4 mg.		600 c.c.	22.2 mg.	800 c.c.	32.0 mg.	do.
3	N.B.	24	700 c.c.	14.0 mg.		800 c.c.	32.0 mg.	750 c.c.	37.5 mg.	do.
Average				17.5 mg.			31.9 mg.		29.8 mg.	

Note.—Yeast was started three days earlier and continued till experiment.

Although due to the departure of one of us (B.B.R.) from these laboratories it was not possible to continue the feeding of yeast with an optimal amount of vitamin C over a long period under conditions of private practice, observations extending over 2 to 3 months, however, indicated that the patients improved in general condition. It seems difficult to assess whether this improvement is due to the sparing action that yeast may exert on the vitamin C in the body, thus making it available to the tissues in greater proportions for detoxicating the toxins, or to a modification in the cellular metabolism and the oxidation-reduction process.

Although the number of cases tried by us is too small to warrant any

authentic statement, further work on a larger number of subjects and the B vitamin which exercises a specific influence will be of great interest.

Summary.—In the course of studies on the feeding of vitamin C and yeast on the ascorbic acid excretion in normal and tuberculous subjects, it has been observed that—

(1) The average daily excretion of Ascorbic acid in tuberculous subjects is lower than in normal persons.

(2) If the diet of tuberculous patients is supplemented with an optimal intake of vitamin C from citrus fruit juice or a single massive dose of Ascorbic acid, the excretion of vitamin C increases, though there is still an indication of considerably more destruction than in normal subjects.

(3) It seems that yeast may exert a vitamin C sparing action.

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On the Anti-bacterial Activity of 'Allium Sativum'*

U. P. BASU AND P. N. SEN GUPTA,

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RECENTLY CAVALLITO and BAILEY (*Jour. Amer. Chem. Soc.*, 1944, 66: 1950) have isolated a new type of anti-bacterial from the cloves of *Allium Sativum* Linn (Fam. Liliaceae). The product has been found to be active against gram positive and gram negative bacteria. The common garlic is known from ancient times to be endowed with therapeutic values and its extract is being largely used in clinical medicine. As it is not yet definitely known how the anti-bacterial principle of *Allium Sativum* exists in the plant itself (cf. CAVALLITO, BUCK and SUTER, *Jour. Amer. Chem. Soc.*, 1945, 66: 1952), it was considered how a normal alcoholic extract of

* Specially contributed to THE ANTISEPTIC.

the garlic cloves would exert its bacteriostatic action. The work that has been carried out for this purpose only is being embodied in this paper.

Experimental.—Preparation:—Garlic, freshly purchased from the market, was collected, washed out with ordinary water and left overnight spread over a wooden tray. Next day this was weighed: 300 such weighing 2,700 gms. These were then peeled to half the size when the residual mass weighed 2,420 gms. These on further peeling afforded the bulbs weighing 2,150 gms. The bulbs were then macerated finely and immersed in 9–10 lbs. of rectified spirit (95% alcohol). The infusion was filtered and the residual mass was again immersed in 5 lbs. spirit for two days. The mixture was then suction filtered and the filtrate was mixed with the previous extract. The whole was then concentrated under reduced pressure (15–20 m.m. pressure) until most of the alcohol had been removed.

The residual gummy mass was then dissolved in double distilled water to a clear solution, and was subsequently extracted with ether previously washed with dilute alkali solution. The ethereal extract was separated and ether was evaporated off slowly under vacuo. An oily residue was left behind and this was then triturated with petrol ether (B.P. 35–38°) and the portion that went into solution was separated off. The residual mass was again washed with petrol ether, dried in vacuo over liquid paraffin and was subsequently used for the anti-bacterial study as described below. The yield of this final crude extract was about 10 gms. The oil was of strong and of disagreeable odour.

Bacteriostatic activity.—For this study a papain-digest glucose phosphate broth maintained at pH 7.4 was employed. The activity of the extract on a number of organisms is shown in the Table below. The figures in the Table indicate the amount of the extract in mgm. per 100 c.c. of broth that produced bacteriostasis. According to CAVALLITO ET AL (*J. Bact.*, 1945, 50: 64) about 0.4 mg. of the pure active principle from *Allium Sativum* per 100 c.c. brings about complete inhibition of *S. Aureus*.

TABLE.

Organisms.	Amount of the extract mgm.
Stap. aureus	1
Strep. hemolyticus	10
Strep. viridans	20
Pneum. Type I	> 20
B. coli	10
B. typhosus	2
B. dysenteriae shiga	1
B. dysenteriae Flexner, Y.	2

From the above it appears that the above crude extract may even be used as an antiseptic in one or the other way. It would be of interest to note the keeping properties of this activity on storage.

Summary.—An active anti-bacterial principle from the peeled bulb of garlic (*Allium Sativum*) may be extracted by infusion with rectified spirit. The crude extract itself exerts a bacteriostatic activity against gram positive and gram negative organisms.

The authors wish to express their sincere thanks to Mr. S. P. DHAR, M.Sc., for certain help in the course of this work.

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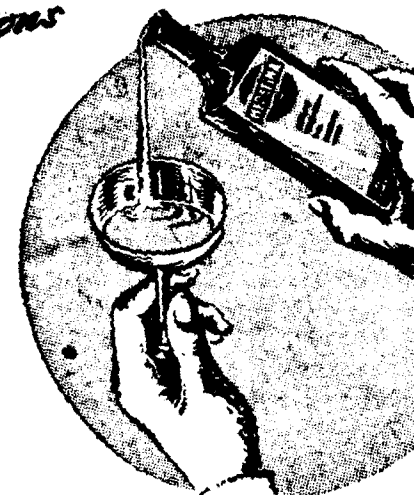
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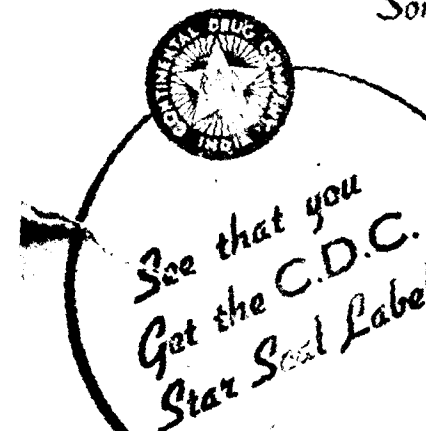


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Important Facts Regarding Vitamin B Deficiency Diseases*

B. GUNAWARDENA, L.R.C.P.&S. (Edin.), L.R.F.P.&S. (Glas.),
Assistant Medical Officer of Prisons, Colombo.

I HAVE been fortunate enough to get together and investigate 114 cases of vitamin B deficiency. These cases I have been able to keep in the hospital and give the necessary treatment. This article is the result of this investigation and I hope that it will be of interest to the profession.

Lack of vitamin B manifests itself in many ways and shows a variety of symptoms. All these symptoms readily vanished with adequate treatment and this factor is very important in that one can give a good prognosis to a large percentage of vitamin B deficiency diseases. Treatment in cases mean both dietetic and medicinal. To start with, I must inform you that all these cases as selected by me happened to be such that they were lacking in an adequate degree of exercise in the open air and compelled to take diets often unaccustomed to them and also the majority of the cases had an enormous amount and degree of mental strain and anxiety. Additional mental strain and lack of proper ventilation and exercise and a diet poor in the vitamin content will naturally lead to signs and symptoms of vitamin deficiency. Before my investigations, the majority were accustomed to a diet rich in carbohydrates and with insufficient milk in their diets. Thus one sees that the lack of a proper quantity of vitamins in their diets may lead on to the lack of stamina in most of these cases, one of the main symptoms exhibited by them. These cases once they were admitted to the hospital were put on a rich vitamin diet consisting of such articles of diet, e.g., as chicken, milk, eggs, tea, dhal, marmite when available, agathi leaves and country rice etc. etc. The importance in this change of their diet routine can be well illustrated in one of these cases where a patient put on 12 lbs. within one month of treatment.

I shall summarise below the signs and symptoms as manifested by these cases. Angular stomatitis on 50 patients; glazed tongue, 36; cracked and fissured tongue, 12; dimness of vision, 4; burning sensation of body, 3; putty coloured stools, 1; cracked soles of feet, 1; gingivitis 2; neuritis, 5.

Nearly all these cases complained of a poor appetite. The inconvenience of eating hot foods due to the mechanical impediment caused by their cracked and glazed tongues accounted for the great majority. It was very interesting to see with the treatment of these cases that often a totally cracked and a fissured tongue came back to normal, without any form of treatment applied on the tongue itself. Also the question of dimness of vision complained by 4 of these patients totally disappeared with the line of treatment adopted. Nervousness and insomnia were the other main symptoms which cleared up quite magically with the vitamin treatment. In some of these cases, their tongues were cracked with deep fissures and they feared to take any form of food, for fear of the irritation of the tongue caused by the partaking of the food in question. A few cases had indigestion and diarrhoea. Dermatitis in a few cases cleared up readily by the application of an ointment consisting of:

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The dermatitis occurred as patches of cracked skin mostly over the scrotum and inner aspects of the thighs and were very intractable to start with.

It will be interesting to observe that in cases of cracked soles of the feet, when they occur in persons not due to any mechanical cause in this country it may be due to (Parangi Infection) or by a lack of vitamin B. The question of frambœsia can be eliminated by testing for Wassermann and Kahn which will give a strongly positive reaction in cases of frambœsia infection but never in a pure case of cracked soles due to vitamin deficiency diseases. The differentiation between the two is very important when one considers the fact that the treatment in the two cases will be quite different from one and another.

Neuritis as a symptom in some of these cases were found to be somewhat exaggerated with a view to evoke the sympathy of the doctor, but a few cases showed definite signs of neuritis. In these cases one has to exclude such conditions as diabetes which lead to neuritis and nervous system diseases. A careful blood sugar estimation and urine tests, etc., will eliminate one from the other and for the cases which may be due to diseases of the central nervous system one has to go through carefully the nervous system.

It is also interesting that in some cases the patients complained of pain over the precordium and breathlessness on exertion, though careful examination of the heart did not show any marked degree of heart involvement. Though there were no clinical signs of actual heart disease it is possible that the myocardium had been affected in these cases. This fact may have been proved on a post-mortem but unfortunately I had no chances of doing any post-mortem on any of these cases as no one died. One particular patient who decided to put a hunger strike showed during his fast a tachycardia of 120 per minute pulse rate, which pulse rate was brought to normal within a very short period by an intravenous injection of two bulbs of vitamin B.

General treatment adopted in these cases consisted of giving these cases a routine exercise and plenty of open air and mental rest in addition to the medical treatment which consisted of a rich vitamin diet and doses of yeast in mixture form and bi-weekly injections of vitamin B. These injections were given subcutaneously in the majority of cases but more advanced cases and those that showed neuritis signs were given weekly two bulbs intravenously and those that showed a low hæmoglobin percentage was put on in addition Blaude's pills and also liver extract injections were given in addition twice weekly.

I am glad to have noticed that all these cases did very well indeed and put on weight and all the general symptoms disappeared quite readily.

Medical Man while a Prisoner of War*

H. C. MUKHERJEE,

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OUR general public and even our medical colleagues have got a very doubtful idea regarding efficiency in military medical department. After serving for about 12 years in the Bengal Medical Service and over 5 years in Military Service overseas, I have noticed that while in Military Service, doctors willing to learn have a vast scope of getting into touch with the most recent and up-to-date treatment. Recent advances and modifications, whatever they are, are adopted afterwards in civil department. So in this chapter I don't like to dwell upon the vast subject—role of medical profession in military department.

Many of our doctors will be inquisitive to know about the sphere and role of medical profession after one is made a prisoner of war. Unfortunately and fortunately I was one of the P.O.Ws. under the Japanese from the 15th February, 1942. Though we were under the protection of the Geneva Red Cross Convention, the authorities under whom we had to serve, did not obey the Red Cross rules in toto. So we had to pass through so many ordeals along with, and in a like manner with the combatants, on many occasions. Those who have gone through higher studies in psychology know fully well, how much degradation in social morals, mental psychology, occur after one becomes a P.O.W. It is for this that people become aghast quite despondent and socially, a wreck. Discipline, regularity, personal hygiene go suddenly to below par. It is why diseases, epidemics supervene very quickly. These are some of the reasons why the death rate is rather more during prisonership than during actual battle time.

Immediately after occupation by an invading army no one can expect normal smooth town life with all its facilities. Dead bodies, carcasses, will be found lying hither and thither, sewage system having been dislodged, water connection, etc., being upset, habits of our people voiding stool here and there and no strict sanitary arrangement being taken up immediately, cases of cholera, diarrhoea, dysentery started in epidemic and pandemic form.

Methodical retreat is more costly and creditable than victorious advance. While retreating many lost their equipments. Many had no mosquito curtain and those who possessed had not the mind to fit it up as there was almost none to look after this gross neglect, specially just after surrender. So after 3—4 weeks malaria in epidemic form started and there were a good number of deaths.

Next comes starvation—inefficient and insufficient food in the prison camp. So after about 3 months, cases of scurvy started and almost simultaneously after cases of primary vitamin B deficiency started. I was from the beginning in subcharge of a big Prisoners of War camp hospital, which had been managed purely by Indian doctors.

We had to open separate wards for vitamin B and C deficiency cases respectively. In the vitamin C ward, we used to feel as if we are dealing with gangrene cases or cancrum-oris of kala-azar cases. It was so foul smelling. There we used to get petechial hæmorrhage, subcutaneous,

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intra-muscular, subperiosteal hæmorrhages, internal and external hæmorrhages, e.g., blood urine, blood stool, blood sputum, blood vomit, recurrence of old united fracture, either spontaneous or of minor causes, carries and osteomyelitis supervening in old united fracture and so forth.

In the vitamin B ward, we could hear from more than a furlong distance, the gnawing and pathetic laments of the patients who used to be under terrible tingling and burning pain, specially at night. None could touch their bed or floor with their feet. They wanted soft carpet or grassy lawn to walk. As these were not possible most of the patients had to lie down on their beds with both feet slightly raised up from the bed. Most of the cases were of dry type. Almost every case had retrobulbar neuritis—pain and tenderness in eyes, photophobia, dim vision. Cases of subhyaloid subconjunctival hæmorrhage, spontaneous corneal ulcer, urine noticed in plenty. As a result of vitamin A deficiency xerosis (Bitot's spots) and night blindness were found in multiple cases and these complaints were as a routine method almost waved at.

Due to vitamin B complex riboflavin and P.P. factor there was almost none who escaped deep and severe manifestations in fauces, dermatitis. Along with all these started universal helminthic troubles.

So after about 4 to 5 months we used to get all patients complicated with so many ailments. Unless we could cover up all sections, it was not possible to cure a case. Our standard of taking a case was his maximum low health value, as such a man with 2.6 millions R.B.C., 40-50 p.c. H.B. and loss of 6-8 lbs. of weight will be categorized fit for work. So when we get a patient his original standard of health will be such and in addition to his main illness for which he has been admitted, we will have to look after his chronic malaria, all varieties of vitamin deficiencies, complaints of chronic dysentery and what not.

Suppose there is a simple case of common cold or influenza in the line. He started serum hæmoptysis. His general health has already gone below normal. To award him the benefit of doubt, he must be isolated and it is not an easy job at that queer time to negative him from T.B. infection for that particular time when numerous open T.B. cases were flaring up here and there.

So, as days went by, we had to put additional diseases along with the main ones. Average case will be given a dose of Santonin or Oil Chenopodium or when these were not available we had to push essential oil mixture after even 5 gr. doses of Santonin. But it was easier to expect R.W. after Santonin course, to give S.W. enema in knee chest position. I can't say here it acted better. Another thing in those cases who had been on M.B. 693 course for particular diseases, round worms were expelled in sufficient numbers, more than what sometimes come out automatically in high pyrexia.

The grave problem arose before us for treatment of these cases—when food is scarce—insufficient, inefficient, bad accommodation, bad hygiene, bad mental condition, medicine and comfort are miserably short. So under the circumstances we had to be resourceful and miserly economic.

So in hospitals to combat so many complications in each case in addition to routine usual treatment for particular disease and its complications we had to add the following according to suitability:

1. Average patient will eat 3-4 green leaves which have been washed with Condyl's lotion. Fresh pills made with green neem leaves specially used to be given for chronic malaria cases. Idea was cellulose and roughage will move the bowels in addition to intake of fresh vitamin C and assimilable iron, neem leaves being considered to be good for chronic malaria.

2. Almost all patients including dysentery cases were given fermented rice water 4-6 oz. daily in the morning for vitamin B.

3. About 2 oz. germinating mung used to be supplied to more important cases as this stuff could not be issued to all—due to shortage.

4. There was extreme shortage of calcium in any form. So fish bones, egg-shell had to be collected from various sources, dried and powdered and then given to the patient. Average dose was 3 i—3 ii. No one showed any ill effects.

5. For deficiency of iron—rusted iron pieces (which were available in plenty after the war) had to be soaked in a cemented tank and the coloured water in ounce doses were given to deserving cases. There were no ill effects.

6. I have tried a special injection for vitamin B and C deficiency cases and the results after few injections were definitely encouraging. Bad type of glossitis where there was no trace of epithelium—no papillæ at all, burning sensation in feet—all these cases improved a lot after this injection. We were absolutely in the dark how it acted. Preparation of this injection was as follows: germinating mung was washed with sterile water and this stuff with just sufficient sterile water to keep immersed are put in Berkfield filter and the filtrate is collected and autoclaved for 10 minutes at 56°C and used to be kept in a rubber-capped vial and 1-3 c.c. intramuscular injections on deltoid, bi-weekly, were given. There was no abscess formation and patient wanted this stuff to get some relief. Of course, if the preparation is stored for more than 48 hours, fungal growth started. Still it could be used again after filtrating and autoclaving. Further elucidation on this subject may be done by the research workers and their explanation will enlighten us in this subject.

7. There was no anti-syphilitic remedy except commercial Bismuth Salicylate. So we used to inject 1 gr. in 1 c.c. olive oil after autodrying, intramuscularly. Results were encouraging. At least we could suppress the symptoms for the time being.

8. We felt quite handicapped while treating malarial cases. We could hardly prevent relapse. Of course there were some cases of fresh infusion—though sometimes we called them relapse due to accurate history of the case being not available. We tried all methods available in Col. Chopra's *Tropical Therapeutics* and other authors' books. But nowhere we were successful. Ultimately when question of shortage arose, instead of pushing 21 Atebrin tablets we injected intramuscularly for 5 days 1 tablet in 5 c.c. distilled water after thorough preparation of the solution. Fever subsided. Question of relapse did not arise as we found out the best methodical treatment as well could not stop relapse. So it was rather an economy. For prophylactic measures we generally put more stress on mosquito curtain but the Japanese give equal importance to mosquito curtain and drinking hot water. They hate drinking cold water. They consider drinking hot water is one of the main prophylactic measures.

along with prevention of mosquito bite. (By law, malaria is a communicable disease in Malaya. Kuala Lumpur Malaria Research Institute where students from all continents came for malariology, is supposed to be the best centre. Staining of thick film with Field's stain is the research work of Dr. FIELD of Kuala Lumpur. No better stain has yet come out to find out malarial parasites so quickly and successfully). Though extreme care was taken for prevention of malaria, remote villages suffered from malaria to a great extent. Atypical cases as found in Indian hill areas and tea gardens, etc., were also found in plenty.

9. In cases of meningitis and other diseases where M.B. 693 has been decided to be tried, due to shortage of medicines and as there was no injectible drugs of the kind, we used to dissolve one tablet in 5 c.c. distilled water, shake it nicely and inject quickly on the buttock with a bigger calibre needle so that the precipitate may not block the needle. Effects of the drugs were quite good and there was no suppuration and total quantity required was very much less than what is required for oral administration.

10. For shortage of injectible Quinine we dissolved Quinine Sulphate with minimum Hcl and injected. Sometimes we dissolved 1 gr. Quinine Sulphate with 1 gr. Phenazone in 1 c.c. and after sterilisation injected intramuscularly when patient's general health standard went below par. There were numerous abscess cases and 2 cases of tetanus from the effect of injection.

11. Commercial camphor in Olive oil B.P. strength prepared by us was the only stimulant injection. As there was no serum available specially for tetanus, we injected 2% Magsulph solution 5—10 c.c. intramuscularly daily once or twice according to the gravity of the case. The results were very satisfactory.

12. For blood dysentery amœbæ could easily be excluded—but whether it is shiga or flexnor type could not be ascertained for want of facilities. Magsulph was very much short. Excepting a few cases getting Magsulph, main ward cases would get "touch me not green leaves" in pill form 15 gr.—30 gr.—4-hourly or oftener according to the gravity of the case. Remarkable improvement could be noticed in every case after 24 hours. In any case we had to give fluids and starchy food. No protein food could be procured for flexnor type. In acute condition kunchi bark was not found effective either in amœbic or Bacillary type.

13. As there is a craving for medicines by the patients and we have got to give them something for our satisfaction and patients' psychology as well, only nominal mixtures were given, e.g., Mist Carminative prepared with Sodabicarb and aqua or at best with Tr. Cardeo mist. Sti. Expect. and mist. Sod. Expul.—the same one mixture made of Ammon Carb. and Vinum Ipecum or only Ammon Carb. Routine use of S. S. Magsulph as purgative was considered as a luxury treatment. In stubborn cases S. W. patient about constipation was rather totally forgotten. Our average people have got very little idea how much a man should void daily according to the nature and quantity of food taken. So many a time, the true picture of constipation, specially in Indian patients, is very difficult to obtain.

14. For cases of dermatitis other than due to vitamin B complex deficiencies, and allergic type of bronchial asthma, as we could not afford

systematic treatment, we generally used intradermal milk 1-3-5 minims, whole blood intramuscular injection, as a routine method. Average result was most satisfactory. In this, there is less chance of suppuration due to ill vitality.

15. Red palm oil which contains vitamin A + + + + +, is not widely known in Indian medicine market. It is amply available at Malaya and Singapore and very cheap as well. We used this oil for granulating healing ulcer, eye drop for xerosis, local application in glossitis due to vitamin deficiency, as liniment, as vehicle for making ointment, to replace Olive oil in sippy treatment, and orally to replace Cod-liver oil for all its functions. For internal use it must be given from 5 minim doses to be gradually increased from 3 i—3 ii dose, as otherwise some cases may have gastro-enteritis, vomiting. For the beginners, it is a little nauseating. This oil was used mainly for our cooking food. It gives a golden colour to the curry prepared. It must be taken while hot, otherwise taste of food will be bad. At the later part of our stay at Malaya almost all people whether sick or not used to take 3 i dose of the oil after food to get action of Cod-liver oil. It was universally liked by our people.

16. While we came to Burma, it was almost impossible to stop relapse of malaria. Routine treatment with 2-3 Quinine injections or by mouth for pyrexial period, followed by Atebrin and Plasmenguine and anti-malaria pills, occasional injection of 0.01 gm. N.A.B. I.V., to some cases continuing Quinine with Iron tonic for 3 months, to some cases putting in with Iron tonic and to push Quinine for 5 days every 10th—15th day of the course, could not stop relapse. Only 5% cases could be saved from relapse. In most cases strict anti-malarial precautions were taken. But it has been noticed that even after repeated relapse, with improved diet and rest and little work in hospital, patients' weight increased. Personally I had about 20 relapses, though strictest anti-malarial precautions were taken just after the 1st attack. It is due to change of climate and surroundings. I have been relieved of this short trouble for the last 2 months.

17. I have given some short idea about the method of treatment we adopted where no other regular ways were open to us. From this we have found out that while practising outside or in hospital, we rather use too many drugs which are not so much essential. If our diagnosis is correct, a very short prescription will serve the purpose and our poor public will not be harassed for purchasing so many drugs. Of course our people also should be educated to some extent that costly prescriptions only will not cure a case.

Probably some of my colleagues may not agree with me and a contradiction may be issued. I shall be glad to discuss the matter in toto in my next opportunity if there be any contradiction.

Vitamins and Vitagens*

SUBODH CHANDRA SANYAL, B.Sc., M.B.,
Natore, Rajshahi, Bengal,

THREE things are necessary for the maintenance of life—food, shelter, and clothing. With the progress of civilization man solved the problem of clothing and shelter to a greater extent than food. The development of civilization has brought a deterioration of food. People began to shift from rural to urban life abandoning pastoral for industrial occupations, where it became difficult to get proper balanced food. In recent times we have learned that we want sufficient and proper food for adequate living. Undernourishment is one of the greatest causes of illness.

I. Functions of food.—Food has three chief functions. First it serves as fuel for the body providing heat by a process of slow oxidation. Second, it furnishes the building material for growth and repair; third, it provides for the regulation of body function. In infancy, childhood and youth the growth function is of the greatest importance but the anabolic and catabolic function goes on all through the life.

II. Essential food factors.—1. Enough protein material to supply an adequate amount of amino acid.

2. Sufficient digestible organic material (carbohydrate, fat and protein) to yield the required energy.

3. Adequate quantities of vitamins needed for human beings.

4. Adequate quantities of vitagens needed for human beings.

5. Mineral material in sufficient quantity and correct proportion.

6. Adequate amount of good water and air.

I shall discuss here about the vitamins and vitagens only.

It was about hundred years ago that the food chemistry and nutrition were in infancy. From the time of LIEBIG and his co-workers of organic chemical analysis the science of food chemistry and analysis was placed on firm basis. It was only in recent times that the role vitamins and vitagens and mineral play was fully appreciated. The early observers of vitamins are the English physician LIND and the Austrian physician KRAMER who in 1757 and 1720 respectively advocated the use of lemon in the treatment of scurvy.

Vitamins—are defined as organic compounds which are required for the normal growth and maintenance of life. These compounds are effective in small amounts, do not furnish energy and are not utilized as building units for the structure of the organism, but are essential for transformation of energy and regulation of the metabolism of structural units.

Vitagens—are differentiated from the vitamins according to the function of those compounds in the organism. Thus vitagens are not only the transformers of energy but also they are suppliers of energy. They are five in number and each group has a particular function within the animal organism. They are: (1) essential fatty acid; (2) essential amino acid; (3) essential carbohydrate; (4) choline and related compounds; and (5) essential organic Sulphur-containing compound.

* Specially contributed to THE ANTISEPTIC.

How many vitamins exist:—Up to the present time fourteen vitamins with specific chemical entities and specific functions have been discovered. The more exact the studies of the requirements of the animal organisms become, the more is one impressed by their complexity. Many factors await discovery.

Vitamins are generally divided into two groups:

(1) Fat soluble vitamins A (A_1 , A_2), D (D_2 , D_3), E, K.

(2) Water soluble vitamins.

Vitamin B complex (B_1 , B_2 , B_6 , Nicotinic acid, Pantothenic acid, Inositol, Para Amino Benzoic acid).

Vitamin C—(Ascorbic acid).

Vitamin P—Citrin (a factor associated with Ascorbic acid and believed to supplement its action).

The group of vitamin A is subclassified into provitamin and vitamin A. These provitamins are converted in the organism into the smaller molecule of the vitamin A structure. There are nine provitamins. Out of these nine, only five are known to occur in the normal food of man; they are Carotenes, Cryptoxanthins. The conversion of provitamins into vitamin A occurs in the liver. The mechanism is not known. Vitamin A occurs only in the animal organism. The physiological function of vitamin A can be regarded essentially as stimulus for the formation of the new cell. An adequate supply of vitamin A in the diet is essential for satisfactory growth in childhood and for the maintenance of a normal resistance against infection both in youth and in adult life. This vitamin is also essential for the proper formation of the tooth enamel. This vitamin plays a direct role in vision and in the regulation of metabolism.

THE SYMPTOMS OF AVITAMINOSIS:—Keratinization on the conjunctiva of the eye, respiratory passage and intestinal tract. Dryness of the skin (toadskin or phrynoderma) and scaliness of the hair follicles are observed. A characteristic deficiency symptom is the impaired vision which results in the so-called night-blindness.

Therapeutic use:—Keratomalacia, xerophthalmia, damage to the epithelium (wound treatment, eye infection), prophylaxis and treatment—infections (respiratory and digestive tract), in hyper and hypothyroidism, increased requirement during pregnancy and lactation.

Test for deficiency:—Dark adaptation as test for vitamin A deficiency is the convenient method for detecting this condition amongst different sections of the population. Recent studies have shown that thirty per cent. of the children in the poor class show the symptom of vitamin A deficiency.

Daily requirement—2,000—4,000 I. U.

Vitamin D Compounds exert the physiological effect of vitamin D; occur only in the animal organism. Some plants contain similar materials which are not vitamin D which may be converted into vitamin D called provitamin D. This also occurs in animal tissue. There are innumerable provitamin D, only Ergosterol and 7 Dehydrocholesterol are definitely identified and fully described. These provitamins do not act as vitamin D but when they are converted into vitamin D become rich in antirachitic properties. The number of naturally occurring vitamin D is unknown. Six different vitamin D are present in Cod-liver oil. Only two

have been isolated. They are called D_3 , D_2 . The latter in Europe is called Calciferol. This Calciferol influences Calcium and Phosphate retention in circulation and favours calcification of the growing bone. It is not known how this effect is produced, but there are some observations to show that the vitamin produces a change in the reaction of the contents of the gut which favours absorption and retention of bone-forming minerals. Recent work shows that it is particularly concerned with the absorption of phosphate.

The physiological functions of vitamin D support the resorption of calcium and phosphoric acid, regulate the calcium and phosphates ratio of blood and facilitate the calcium regulation of bones.

SYMPTOMS OF AVITAMINOSIS:—Vitamin D deficiency caused the occurrence of rickets. In babies with the retardation of the calcification of the fontanelles, excessive cartilage formation sets in, especially at the ends of long bones and results also in the enlargements of the joints. Deficiency of vitamin D is also responsible to a certain extent for the dental caries. Infantile tetany is also due to vitamin D deficiency for the faulty metabolism of phosphorus. The brittleness of bones in adult life known as osteomalacia is also due to vitamin D deficiency.

Therapeutic use:—Rickets, osteomalacia, tetany in children, during pregnancy and lactation, dental caries and delayed callus formation and in the healing of wounds.

Daily requirements—Adults 3,000 I. U.

Vitamin E.—Three different vitamins E have been isolated from the natural sources called tocopherols. These tocopherols play an important part in the reproductive cycle through the intermediary of the anterior lobe of the pituitary gland. Females deprived of a sufficiency of these vitamins show a characteristic type of secondary sterility. Pregnancy which begins in a perfectly normal manner is suddenly terminated by the death and resorption of the foetus. In the male a deficiency of E may cause premature degeneration of the spermatogenic tissue. The vitamins are found in the green plant tissue, but the richest source is the oil extracts from the wheat embryo.

Physiological functions of the vitamin E is the regulation of the development of gonadal epithelium and of the foetus. Prevention of nutritional muscular dystrophy.

SYMPTOMS OF AVITAMINOSIS:—Abortion and resorption of the foetus, sterility, neuromuscular disturbance, muscle degeneration.

Therapeutic use:—Habitual abortion in women, treatment of prematurely formed congenital disturbance of the development and muscle degeneration and dulled acoustic and olfactory senses.

Daily requirement—2–5 mg.

Vitamin K.—Professor DAM when studying the nutrition of young chicks found that the chicks developed subcutaneous and intramuscular hæmorrhage on certain diets which it was supposed contained all the requisite vitamins and there were in addition marked anæmia. Scurvy of some extracts prepared from certain green vegetables. The physiological action of the vitamin K is the stimulation of prothrombin formation in

liver and preservation in normal coagulation properties of blood. Absence of this effect may indicate severe liver damage.

SYMPTOMS AND AVITAMINOSIS:—Lowered prothrombin level with severe general hæmorrhage, the bleeding tendency occurring in hæmorrhagica neonatorum and in obstructive jaundice is due to insufficient resorption of the fat soluble vitamin K when bile production is reduced.

Therapeutic use:—Hæmorrhage due to prothrombin deficiency in obstructive and other forms of jaundice, bile fistulæ, minor liver damage, sprue, celiac disease, hæmorrhagic retinitis.

Vitamin B₁ is called Thiamine in America and Aneurin in Europe. The existence of this anti-beri-beri or anti-neuritic vitamin was isolated by EJKMANN some forty years ago while he was working in polyneuritis in fowls and human beri-beri. It is widely distributed over the plant kingdom. It occurs in high concentration in seeds specially in outside bran coats. Vitamin B₁ is essential for the proper utilization of carbohydrates. A deficiency of vitamin B₁ effects first the emotions and the nervous system. Loss of appetite, unusual susceptibility to fatigue and gastrointestinal disturbance are common. The disease of advanced vitamin B₁ deficiency are known as polyneuritis and beri-beri which are caused by injury to the nerve tissue and which manifest themselves as lameness, disturbances of the motor and sensory nerves, hypertrophy of the heart and finally death from heart failure.

Vitamin B₂ is called Riboflavin in America and Lactoflavin in Europe. It is widely distributed over the entire animal and plant kingdom, but occurs only in very small concentration in places where no respiration or fermentation occurs (the free Riboflavin is found). The activity of Riboflavin is attributed to its participation in various enzyme systems. It is therefore indispensable to the normal functioning of the oxidising system of all cells. It is not known what part it actually plays in the tissue. It is essential for the metabolism of carbohydrates. A deficiency of this vitamin results in impaired growth. Cracking of the lips and the corners of the mouth are due to the deficiency of this vitamin. The most characteristic change in the eye is the vascular invasion of the cornea.

Vitamin B₆ is called Pyridoxin. It appears to be widely distributed in both plants and animals, seeds, yeast and livers contain relatively high concentration. A deficiency of this vitamin in man has not been associated far with specific clinical symptoms. Its use in toxæmias in pregnancy has been much advocated in recent years.

Nicotinic acid.—This is known as niacin or niacinamide. It does not occur in the living organism. It is found in the urine of animals. It occurs in the tissue as amide. Food actually contains the amide form which is known as vitamin. The use of this vitamin is preferable than the acid which gives rise to certain toxic reactions. This is essential in the metabolism of carbohydrates. Deficiency of this vitamin causes pellagra which is characterised by lesions of the mucous membrane in the mouth and of skin over nose, forehead, wrist, hand, knees and feet. Disturbance of the gastrointestinal tract is due to the deficiency of this vitamin. Nicotinic acid has been reported to have some value in certain psychotic states and in angina-pectoris.

Pantothenic acid—Inositol, Para-Aminobenzoic acid—these are very rare vitamins. The human requirement of Inositol and Para-Aminobenzoic

acid has not yet been established but their use in the animal kingdom sometimes is advocated. Pantothenic acid plays some role in the carbohydrate metabolism. Its deficiency is stated to cause damage to suprarenal tissue, testicles and cartilage.

Vitamin C.—This is called ascorbic acid. This is found in all higher plants in considerable concentration. Citrus fruits, green vegetables and apples are well known excellent sources. This vitamin was isolated by the Hungarian biochemist SZENT GYORGY and then by the American scientists KING and WAUGH from fruit juice. It has recently been synthesised and the laboratory prepared compound is now available. It was sometimes known as the anti-scorbutic vitamin C.

The physiological function is still unknown. It may act as hydrogen carrier in cellular metabolism, anti-infection vitamin, general cell stimulant. The clinical symptoms of vitamin C deficiency are summarised under the term scurvy, joint swelling with hæmorrhage. Bleeding of mucous membrane, gingivitis, low resistance to infection. There are also certain changes in the bones which give rise to increased fragility and the dentine in tooth changes in structure.

The therapeutic uses of vitamin C are numerous. With the progress of medical science the uses of vitamins are increasing daily. The following are chief indications—scurvy, swollen and bleeding gum, bleeding tendency, increased requirement during pregnancy and lactation, deficient metabolism. Febrile infection (tuberculosis, asthma, pneumonia, diphtheria) exophthalmic goiter, dental caries, cutaneous and allergic drug reaction (Salvarson and gold dermatitis) healing of wounds.

Vitamin P—It is called Citrin. It occurs within tissues in combination with a protein. It serves as a hydrogen transporter and the exact mechanism is not yet known. The deficiency of this vitamin causes the decrease of capillary resistance and the increase in the vascular permeability. The clinical symptom is something scurvy-like hæmorrhagic condition which is not cured by vitamin C.

In addition to the vitamins which have been identified, there is an unknown number of non-identified vitamins. Future research will uncover the other vitamins.

I have discussed so far about the symptoms of avitaminosis and the therapeutic use of the vitamins; but from what I found in my experience and practice, I believe that there is a possibility of cases of hypervitaminosis of toxic actions of the vitamins. While treating a case of ricket of a Punjabi child aged about two and a half years I prescribed vitamin A and D together with calcium and phosphorus salts. After six months I found that the child became too much fatty, liver and spleen both were found enlarged, fingers looked a little clubbing and the hair was scanty. During the rickety condition he could move about but after six months when I saw him, the child neither liked to move nor had he any inclination for food. I thought it to be a case of hypervitaminosis and stopped the vitamin A and D and prescribed fruit juice. The child began to improve. The overdose might have disturbed the regulating mechanism of the vitamin A and D in the blood.

In my second case while I was treating a young lady aged about eighteen years for her chronic constipation, anorexia and some other vague

complaints I prescribed liver extract per oral and injections of vitamin B₁, 25 mg. per c.c. After three consecutive injections when I gave the fourth one, she felt some giddiness and had slight perspiration all over the body, which disappeared within a few minutes. Next day when I gave her the fifth injection her pulse dropped, profuse sweating started and she began to vomit. She also felt some uneasiness on her cardiac area. After fifteen minutes of my struggle she began to improve. To satisfy my own inquisitiveness, I injected on the sixth day half the dose of vitamin B₁, which she tolerated nicely and rest of the injections about six in number were given in half the dose of vitamin B₁, which had no bad effect. Here also I must say that hypervitaminosis occurred due to the disturbance of the regulating mechanism of vitamin B₁ in blood. I did not meet with cases of hypervitaminosis in other vitamins. My colleagues will throw further light on it so that indiscriminate use of vitamins may not cause any mischief.

The Rhesus Factor in Indians*

G. W. G. BIRD, M.B., B.S.,
Major, I.A.M.C.

A SMALL quantity of Rhesus anti-serum derived from mothers of children with erythroblastosis foetalis was brought from England early last year (1945) by the A.D.P. (Transfusion), G.H.Q. (I). As far as I am aware it was obtained from the Galton Laboratory Serum Unit, Cambridge, and the Army Blood Supply Depot, Bristol. It was brought by air in a thermos flask, and was well packed in ice so that there would be as little loss of titre as possible. The serum was given over to me at No. 3 Base Transfusion Unit, Poona, with the suggestion that it should be used to investigate the distribution of the Rhesus factor in Indians.

The serum was that known as anti-Rh (synonyms: anti-Rh 85%, anti-Rho, anti-D, etc.), i.e., it was identical with the serum which LANDSTEINER and WEINER first discovered in 1940¹, by injecting the red blood corpuscles of Rhesus monkeys into rabbits or guinea-pigs. LANDSTEINER and WEINER's original serum agglutinated the red corpuscles of 85% of the white people of America, but failed with the remaining 15%. The Negro population acted differently in that 98-99% were Rhesus positive.

The serum was put in Poona against the red corpuscles of 390 Indian soldiers of the appropriate ABO group. The soldiers were selected at random and were of all religions and castes, and belonged to all parts of India. One drop of serum and two drops of sterile Isotonic Saline were placed in a series of small tubes (2½" x ¼"). To each tube one drop of a 1% suspension of corpuscles to be tested was added and the contents mixed by agitating the tubes. The tubes were placed in an incubator at 37°C for two hours. The results were read by noting the appearance of the cell deposit. If the deposit had a clear-cut edge it was taken to indicate absence of agglutination; if the edge was irregular, or if it took the form of scattered dots, the test was considered positive. A control was put up consisting of each sample of red corpuscles in isotonic saline without any serum. If any granularity appeared in the control the sample was rejected.

* Specially contributed to THE ANTISEPTIC.

The serum used in this work had been put up in England against the corpuscles of British people and 85% of them had been found to be positive. At the time of the experiments in Poona it was perfectly clear and was thus presumed to have been sterile. The R.B.C's. of the A.D.P. (T), who was positive with this serum in the U.K. was found to be positive in Poona to almost the same titre. Thus, very little fall in titre had occurred during transit. All samples of the corpuscles of Indian soldiers, which were negative with the comparatively undiluted serum, were put up against higher dilutions. One specimen was found to be positive with the higher dilutions after being negative with the relatively undiluted serum ('Prozone' phenomenon). Of the 390 bloods examined only 4 were negative. This gives a percentage of 98.9% positives. The distribution of the Rhesus factor among Indians would appear to correspond with that of the dark-skinned people of America.

GREVAL and ROY CHOUDHURY (1943)², however, using serum prepared by themselves in the manner described by LANDSTEINER and WEINER, showed 20 negatives in 200 Indians of Calcutta. No British bloods were put up in parallel.

If the work described in this paper is reliable, the rarity of Rhesus negatives in Indians would make remote the chances of transfusion incompatibility resulting from the production of anti-Rhesus antibodies. Further Rhesus initiated erythroblastosis foetalis will be very rare. Again, if Rhesus negative blood is required to transfuse a Rhesus negative recipient in whom a previous transfusion of Rhesus positive blood had produced an anti-Rhesus antibody, it would be a matter of difficulty to obtain a Rhesus negative donor, particularly of the appropriate ABO group. A search among fair-skinned (European) donors may be far more profitable.

Summary.—Using Rhesus anti-serum which gave 85% positive in British people, almost 99% of Indians were found to be positive. This figure differs from that obtained by other workers in India who do not seem to have put up British controls. The results of other workers in this field would be of interest.

References:

1. Weiner, A.S.—(1943), Blood Groups and Blood Transfusion, 3rd Edition, Springfield, Ill.
2. Greval, S.D.S. and Roy Choudhury, A.B. (1943), Jour. Ind. Med. Assn., 13, 65.

Animal-Diseases Common—Particularly for Lymph making to be Guarded Against*

DR. KAKU M. HIRANANDANI,
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Foot and mouth diseases.—It is an infection, primarily of cattle, and secondarily of man. It is transmitted to man, through the ingestion of raw-milk, butter-milk, cheese or whey from diseased cows. Children are also not infrequently infected by drinking unboiled milk.

SYMPTOMS.—Fever, painful swallowing, heat and dryness of mouth, eruptions of vesicles in the buccal mucous membranes, and sometimes on the fingers. The vesicles are of the size of pea, and soon break and heal. The disease is seldom fatal except in weak children.

* Specially contributed to THE ANTISEPTIC.

CAUSATION.—By filterable virus, called *Löffleria-Neuvermani-Bacillus-LOFFLER* and *FROSCH* discovered in 1898.

Symptoms in animals.—Apthous fever, eczema contagiosa. Highly communicable disease; vesicles on the mucous membrane of the mouth and on the skin between toes and hoofs, on the udders and other parts of the body, salivation, lameness, diminution in the quantity of milk secretion. The mortality is low. Foot and mouth disease cannot be conveyed to man through cutaneous inoculation generally.

TREATMENT.—Quarantine, destruction of infected herds; destruction of exposed animals; disinfection in man; the care of milk—not to take of the infected animals. Proper boiling and pasteurisation of milk. Lime powder to herds, other antiseptics as lotions and mouth washes.

Pasteurisation.—It consists in heating milk to a temperature below that of boiling. It is a measure of public health importance. Milk should be pasteurised at some central station scientifically with proper machinery.

Cow-pox (Vaccina).—It is a contagious disease of cattle, causing vesicular eruption on the udders and teats. The vesicle is bluish in colour with redness around; the secretion of milk is scanty; the disease is caught, by the milkers, when having cuts or scratches, etc. on the hands. Thus it is carried to other cows from infected hands by milking. Cow-pox is now a rare disease, as small-pox has been controlled by vaccination. Cow-pox is nothing more nor less than variola, modified by transmission, through the bovine animal.

Fowl-pox.—Seems to belong to small-pox group. The virus of *fowl-pox*, inoculated into the skin of the leg, produces a modified mild infection, which protects. This method is in use on chicken farms. So is *cannary-pox*. (birds-pox).

Rinder-pest-disease.—It is known by the symptoms of diarrhoea and collapse.

TREATMENT.—Isolation; anti-rinderpest-serum inoculation.

Symptomatic treatment:—Disinfection of animals and quarantine.

Ticks (Ixodidae):—Common disease in animals.

TREATMENT:—Arsenical cattle dip; two dippings are necessary at intervals of one week or two weeks.

Petroleum wash: (Emulsion)—Hard soap 1 lb., soft water 1 gallon (8 pints—160 oz.); Beaumont Crude Petroleum 4 gallons. Add 3 gallons of water to 1 gallon of mixture.

Scabies in animals.—**TREATMENT.**—Lime and Sulphur Dip. Lime acts as a solvent for Sulphur. Formulæ—Unslaked lime, 8 lbs.; Sulphur, 24 lbs., water 100 gallons. Boil for two hours. Keep the animal in the dip 2—3 minutes, by the watch. Use the dip at a temp. of 100°F.—110°F.

Piroplasmosis.—Symptoms—fever like malaria.

TREATMENT.—Quinine—Varieties: *Piroplasma bigeminum*; *Piroplasma*—oris (sheep); *Piroplasma*—canis (dog); *piroplasma-equi* (horse).

Animal parasites—Chemistry.—Chitin is one substance that constitutes a large part of the outer coverings of the encysted parasites, as well as the outer portion of many of the worms. Chemical study of the bodies of

strongyles show their bodies to yield fats, fatty acids consisting of Butyric acid, soaps, mucin, albumoses, purin bases and creatin.

Hemasporida (Hemo—blood, sporidium—spore).—The *hæmasporida* belongs to the class, sporozoa, and includes the genus—*piroplasma*.

Protozoa (Proton—first, zoan—animal).—In finding out an anti-toxin, serum or an antidote, we must know the microbic chemistry, and bacteriology. Different toxins, different peculiar properties.

Fomites.—Porous substances, which absorb and retain contagious effluvia, as woolen clothing, cotton materials, etc.

Zymotic.—Like yeast. It means some morbid poison acting in the manner of a ferment. They are contagious and small-pox is a zymotic disease.

Tetanus.—It is caused, by the inoculation of tetanus bacillus discovered by KITASATO. It is anacrobe and loses its virulence on exposure to air. It appears to live in earth, from which horses get inoculated, about the hoofs. Escaping from the horse, it is found in stable manure, road-earth, and garden mould and the herds. It is from these sources that infection spreads to man and animals. Tetanus is traumatic infective disease. Horse dung, mud in streets, etc., exclusion of oxygen, are the medium for their growth. So cow herds should always be away from horse stables. I have referred to few diseases, which are particularly to be avoided in utilising an animal for vaccination and the lymph preparation.

Pox-quarantine.—Chicken pox, 21 days; measles, 15 days; small-pox, 16 days. Average safe, 3 weeks for all poxes. Quarantine is necessary with disinfection imperatively.

Care of lymph-vaccine.—It must be kept in cold storage room, or in refrigerators or ice box or cold packings. It must be properly checked for the date of receipt and expiry of time. Lymph must be properly checked for the date of receipt and expiry of time. Lymph must be destroyed in the running stream of water when time barred. It should not fall in other hands, as its state and indiscriminate use is dangerous. The all subordinate staff of vaccination department must fully realise that the continuance of spirit, cotton, boric powder are towards the efficient use of the public health and there must be limitations of medical conscience and self-conscience. Tendencies towards such wrong doings must be discouraged. A tendency among the subordinates, to omit a *right thing*, is to be cautioned, or to do a *wrong thing* to signify an officer's inferiority and subordinates' superiority.

HOMEOPATHIC TREATMENT.—Anti-toxica as preventive and curative injection (American Homeopathic Society Calcutta).

This needs to be widely tried and opined.

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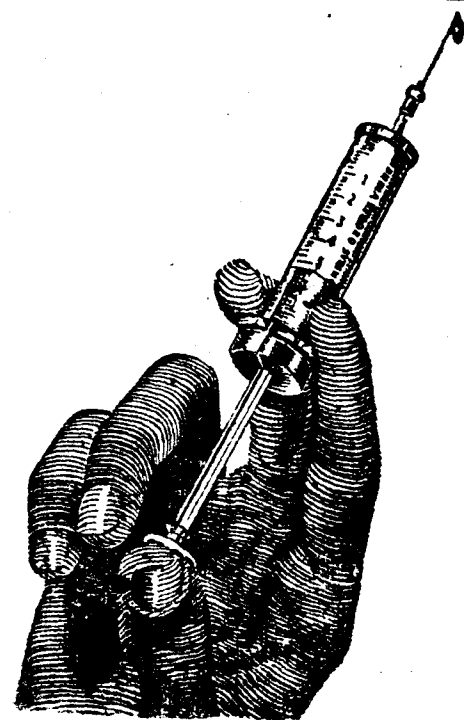
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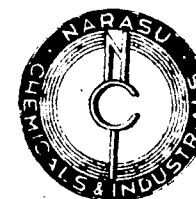
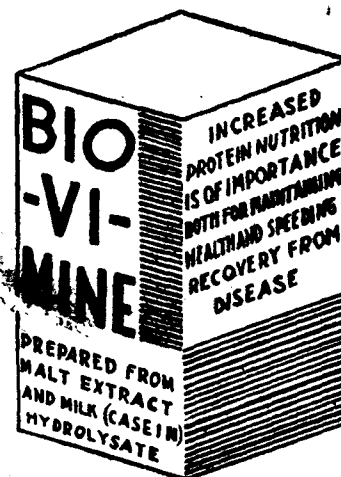


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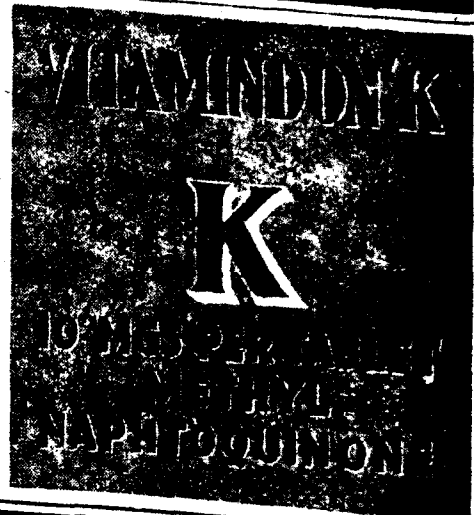
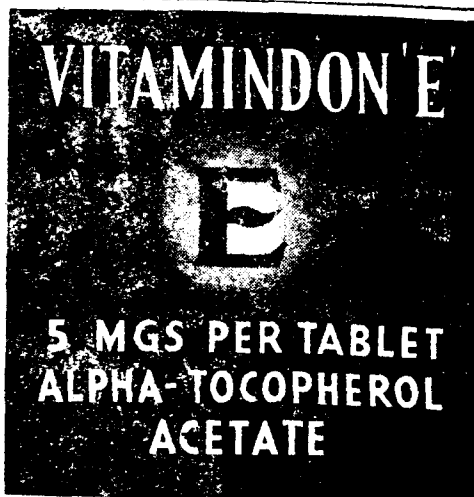
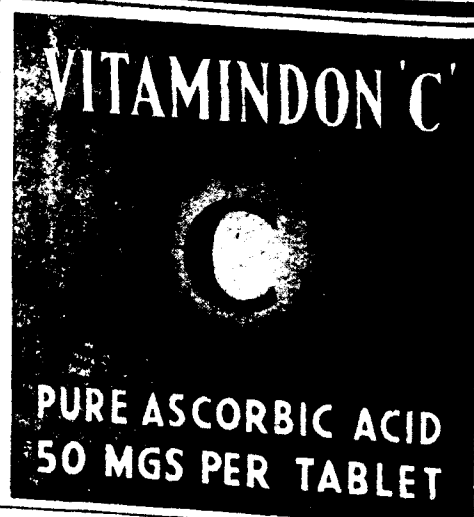
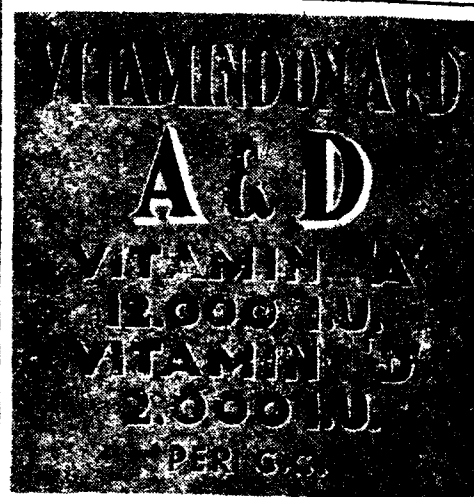


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Dr. Andrew Munro, the First Physician of Madras*

An Esteemed Medical Officer of the 18th century

DR. D. V. S. REDDY,
Medical College, Madras.

THE names of two surgeons, ANDREW MUNRO and BARLOW occur in the records of 1746, when Madras was besieged by the French. During the actual bombardment of Madras, these two doctors with their medicines dressings and equipment, took shelter in St. Andrew's Church in the Fort as a safe place and attended to the sick and the wounded. After the surrender of Madras they seem to have left the Settlement along with the other English employees. Barlow's name does not appear again in the Fort St. George records.

But MUNRO came back to Madras in the latter part of 1749, i.e., after the rendition of Madras. In the statement of general account showing the payment of covenanted servants in the Company's service at Fort St. George on 31st December 1749, Dr. MUNRO, the Surgeon, is shown as drawing a pay of 36 pagodas per mensem, with some additional allowances (which will be detailed later). The hospital had also one surgeon's mate at this time and his name was James Wilson, who had a pay of 15 pagodas per mensem, and an allowance of 10 pagodas per mensem for acting as Steward of the Hospital in addition to his own duties.

In the middle of 1750 MUNRO addressed a letter to the Council which is an important document, showing the condition of the hospital and the work of the doctors. It is reproduced below :—

'To the Worshipful Richard Prince, Esq.,

Deputy Governor of Fort St. George, etc., Council.

Sir and Sirs,

I must beg leave to lay before you, the *state of the hospital* in order to show the necessity I am under of hiring a house, or proper lodgings. Upon Admiral Boscawen's taking possession of this place, in August last, the *hospital was, and is so much crowded ever since, that there has not been proper room for the sick, so that the usual apartments for the mates, have been taken up by them.* One of the surgeon's lodgings the Officers have possessed ever since; the *other apartment, I mean the late Mr. BARLOW's being immur'd and straight-n'd by the French, in fortifying the place; so that, there is hardly room for the two Assistants; therefore I must request the favour that some allowance may be made me for house rent which I now pay the Hon'ble Company themselves.*

I must also beg leave to represent, that I have been all along *in great want of an assistant; having had but one mate all this time; I need not say, there usually were two allowed; as well as two surgeons, when there were fewer men in this garrison, than there are at present; therefore, I hope my request will not be thought unreasonable and now begging pardon for giving all this trouble, I conclude with all the respect and consideration imaginable.*

Fort St. George, }
29th June 1750. }

Worshipful Sir and Sirs,

ANDREW MUNRO.'

* Specially contributed to THE ANTISEPTIC.

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The Deputy Governor and Council decided to recommend his request to the Presidency (i.e., Fort St. David) as there had been formerly two mates allowed in this place, when the Garrison was smaller than in 1750. The request appears to have been sanctioned.

In the account of payments in December 1750 in addition to the surgeon and one mate, there is shown another mate JOSEPH HINCHLY, surgeon's mate of the hospital at pagodas 15 per month.

In 1752—1753, TURING who was surgeon at Vizagapatam, was transferred to Madras as second surgeon of Fort St. George and one of the Presidency Surgeons and succeeded as Chief Surgeon, on MUNRO's death. His name first occurs in the records of the year 1729 as Surgeon's Mate at Fort St. David. Col. LOVE suggests that ROBERT was the brother of Dr. JOHN TURING, surgeon of the Company's ship, 'Greenwich', who was at Madras in that year. In 1737, ROBERT TURING, then surgeon's mate at Fort St. George was sent down to Fort St. David to act as surgeon there. Dr. ANDREW MUNRO, whose long and distinguished career as surgeon of Fort St. George has been traced already, applied to the Council, to lay down the office of the surgeon on account of his great age and infirmities, in December 1756. The Council recorded their appreciation of Munro's meritorious services in the following consultation dated 28th December 1756:

'The President informs the Board that Mr. ANDREW MUNRO had been to acquaint him that his age and great infirmities had render'd him quite unable to go thro' the fatigue of the surgeon's employ; that being desirous of giving all the assistance in his power, he often went abroad when he was more indisposed than many of his patients; and that he found himself so little able to do the duty necessary at the hospital that he was obliged, for the good of the people, to make known his infirmities.

'The President adds that, upon Mr. MUNRO's leaving him, he had thought of writing for Mr. WILSON, who is the next surgeon, and now at Trichinopoly, to come hither to supply his place; to give Mr. MUNRO liberty to retire from all business, and to continue to him his salary. But considering afterwards the great merit of this gentleman, the many obligations the inhabitants owe to him, and the great opinion most of the gentlemen in the settlement have of his abilities, he thought something more should be done for him as a reward for his past services, and that the town should not be deprived of the advice of so able a man. He proposes and requests of the Board that they will call up one of the other surgeons to assist Mr. TURING in the hospital, and that Mr. MUNRO may be appointed the Company's physician at this settlement..... And that the Company may be address'd on this subject, requesting their confirmation hereof, and a suitable addition to his salary. All which the Board unanimously agree to.....'

* * * *

Bilateral Ectopia Lentis with Arachnodactyly Marfan's syndrome with report of a case and review of literature

P. K. BHAT, M.B., B.S., D.O.,
Ophthalmic Surgeon, Bhavnagar.

Case report.—A boy, Hindu Brahmin, aged 14 years, came for the examination of his eyes in May 1946. Boy was 5½ feet in height, thin and slender, with prominent mandible, fingers slender and long, feet long with slender and tapering toes, weight 102 lbs.

Ocular examination:—U.R.E. = 8 ft. with —8 D sph 12 ft VLE = M.B. Cornea in both eyes larger than normal. Anterior chamber irregular in depth, deep below, shallow above in both eyes.

Pupils:—Small and situated upwards and outwards B. eyes. On movements of the eyeball there was iridodonesis in both the pupils, the edge of the lens can be seen. In R. eye the lens was cataractous.

Fundus examination:—The right fundus can be seen with the ophthalmoscope, myopic changes were present. The L fundus cannot be seen because of the cataractous lens. Both lenses were displaced upward and outward. Here was a case of bilateral ectopia lentis with arachnodactyly or Marfan's syndrome. MARFAN in 1896 reported his first case of ectopia lentis associated with body defects. He gave the term Dolichostenomaly or Dolichomaly and later on arachnodactyly. Since MARFAN described his first case nearly 250 cases are reported in literature.

Essential symptoms in the syndrome are:—

(1) Elongation and thinning of the bones of the limbs most marked in the distal extremities.

(2) Abnormal height.

(3) Slenderness and hypotony of muscles.

(4) Thinness of subcutaneous fat.

(5) Dislocation of lenses.

(6) Accompanying the dislocation of lenses there may be rarefaction of cannular fibres, coloboma of lens iris, choroid or lid.

(7) Generally bilateral.

(8) Other anomalies such as myopia, amblyopia, endophthalmos, exophthalmos megalocornea to a more or less extent, presence of pupillary membrane, polyuria, corectopia, coloboma of iris, lens or choroid, retrobulbar cyst or coloboma of globe may be present.

(9) Other constitutional defects such as dwarfism, skeletal deformities, congenital heart disease or polydactylism may be present. Nearly 50% of cases with these body defects present bilateral ectopia lentis.

Position of lenses in ectopia lentis depends upon—

(1) Direction of location.

(2) Degree of dislocation.

In a majority of cases lenses are dislocated in an upward direction though lateral or downward dislocations may occur. Another factor influencing is senescence and subclinical trauma on a congenitally weak canula.

The patient when seen may be of any age. Signs at birth are so indefinite that the diagnosis is not suspected until the child starts going to school. By this time much damage may have been done to the eyes. Degree of dislocation may vary from subluxation to complete luxation. Partial dislocation may be such that the edge of the lens is seen in the pupil as in the case reported and there is both phakic and aphakic refraction and fundi can be observed with possible result of monocular diplopia. Total displacement may be either in the anterior chamber or vitreous. The result of the complete dislocations are disastrous such as iritis, iridocyclitis and glaucoma with subsequent loss of vision and even the integrity of the eye with cataract and detachment of retina.

Diagnosis.—Signs are:—

- (1) Deep anterior chamber.
- (2) Iridodonesis.
- (3) When pupils dilated canular fibres are seen.
- (4) Edge of the lens visible in the pupil.
- (5) Unexplained astigmatism.
- (6) Failure of pupils to dilate under mydriatics even atropine.
- (7) Unequality in the depth of A.C.
- (8) Myopic refraction—this is more lenticular rather than axid.
- (9) There may be double refraction, phakic and aphakic, and duplicated view of the disc may be obtained with the ophthalmoscope.

Bilateral ectopia lentis with arachnodactyly is a hereditary and familial disease. Many cases in one single family had been described and reported. Sometimes this hereditary or familial condition is not present. As in the reported case in this paper on eliciting the history, no such case in the family was present or the parents suffered from any ocular defect.

Various theories have been attributed to this condition such as:

- (1) Genetic origin—Bimutation of genes.
- (2) Endocrine dystrophy—Disturbance of the endocrine system in placental life.
- (3) Mesodermal dystrophy.
- (4) Hypophyseal dystrophy.

In this theory that the syndrome results from embryonic alteration of the anterior hypophysis due to various causes especially toxic and microbic although the pituitary gland and sella turcica are below normal size, the prehypophysis secretes an excess of growth hormone by increase in number of eosinophilic cells or by their greater activity. This hormone acts on the cells which nourish bones and muscles. First there is hyperfunction and then hypofunction:

- (5) Congenital syphilis: foetal syphilis acting through vascular damage as a developmental interference.
- (6) IDA MANN considers the defect as a dislocation of structures rather than failure, regards that ectopia lentis is due to an ectodermal defect primary in the canula at some part of the ciliary ring. It begins about the end of the 3rd month but its potentiality is present from the beginning since it is germinal.

Thus it is very difficult to define actual etiological basis for ectopia lentis but in general sense the anatomic variations from the normal which are termed congenital anomalies, may be considered, as the resultant of the mutual influence of prenatal development and hereditary characteristics. The symmetry and bilateral occurrence indicate influence of heredity. In some families the defect appears almost exclusively in the females; in others in males, in some no sex preponderance. The condition may be transmitted either by father or mother to either daughters or sons.

Some regard it as of recessive character because they found co-sanguinity. But most authors consider hereditary as dominant characteristic because the defect is most commonly transmitted by a parent who manifests the defects.

On the other hand, heredity cannot be proved in all cases of ectopia lentis as in the present reported case where both parents have no ocular defects.

I have reviewed literature of the last 15 years. The earlier writers did not differentiate between various types of dislocated lenses.

The earliest case reported by BERRY at 1749 was that of a young man with both lenses in the anterior chamber likely the end result of congenital subluxation.

SIOHEL in 1846 distinguished between traumatic and spontaneous dislocation.

ARLT in 1849 brought the congenital factor in his observation of dislocated lenses in children and in persons who had no trauma or ocular disease.

In 1856 STELLUNG introduced the term ectopia lentis and described ectopia lentis and congenital dislocated lenses as synonymous terms indicating a developmental anomaly.

TABLE I

Year	Author	No. of cases	Sex, age	Condition of lenses	Associated conditions
1930	Huschel	1	Male, 28 years.	Dislocated lenses upward and outward.	Total blindness.
1932	Perido Briner	11	Girl, 12 years, 6 between 24 and 42 years.	Bilateral ectopia lentis.	Retinal detachment after successful removal.
1932	Hudson, A. C.	2	Brother Sister	{ Members of family of 4 children.	Fingers slender, deformities of bones of chest and appearance of head suggested Acromegaly.
1933	Caddy Adrian	1	Female, 29 years.	Congenital dislocation of lenses since childhood.	V with 18 D sph —40 cyl —180°=8/36 in each eye.
1934	Viallefort, H., Temple, J.	4	Father and 3 children out of five.	Bilateral ectopia lentis.	Typical syndrome of Arachnodactylia present.

TABLE I—*contd.*

Year	Author	No. of cases	Sex, age	Condition of lenses	Associated conditions
1934	Moncriff, W. W. ...	1	Girl, 20 years.	Bilateral congenital ectopia lentis.	Right lens dislocated upward and outward. Left lens directly upward. Iridodonesis present. Both eyes:—Upper portion aphakic and myopic; lower portion phakic and hypermetropic. In the right eye zonular fibres crossed the pupillary zone and were grouped into triangular bundles with open spaces between while in the left eye the fibres had a more uniform appearance.
1934	Hambresin and Van De Macle, M.	7	Two families In one:— Mother and 3 out of 7 children. In other mother and one out of 2 children.	Luxation since birth and tendency to increase.	...
1935	Loyd, R. I. ...	6	Five cases in one family—mother and 4 children; one in separate family.	Bilateral ectopia lentis.	Anchnodactyly, 2 had spinal bifida occulta. Arachnodactyly with Taps, retinal degeneration. None of the above had congenital disease.
1935	Pottingen, B. N....	22	In five successive generations.	Do.	...
1935	Tiscoinea, B. J. ...	1	Child, 5 years.	Do.	No other case in the family.
1935	Fledelius Moyens.	2	Male, both adults.	Bilateral congenital ectopia lentis.	Both 6 ft. tall, slender extremities, large spindle-shaped fingers and toes.
1935	Francis Jules ...	1	Boy	Bilateral ectopia lentis.	Retarded sexual development. Disturbance of water and carbohydrate balance lowered metabolic rate.
1935	Horace, E. Allan.	1	Male, 40 years.	Do.	Lenses showed irregularly distributed opacities, pupils oval and displaced downward and nasally. Fundi: extensive pigmentary degeneration. No familial and hereditary history. Hands and feet did not show typical arachnodactyly.
1935	Tichonive, P. E.	3	...	Do.	Two had retinal detachment.
1935	Ameler, M. ...	8	Family of nine persons in three generations.	Do.	Visual acuity from 0.1 to 0.9 myopia. Displacement not the same in all cases but none was displaced inferiorly.

TABLE I—*contd.*

Year	Author	No. of cases	Sex, age	Condition of lenses	Associated conditions
1936	Nyemyer Waldemar.	1		Do.	Typical syndrome with Arachnodactyly.
1939	Benit Maurice.	1	Boy, 15 years.	Do.	Anisocoria Arachnodactyly.
1938	Marfan, A. B. ...	1		Do.	Divergent strabismus, hereditary and familial tendency.
1939	Szineyh B'ela ...	2	1	Do.	Congenital syphilis.
1939	Saint Martin, R.	1	Female, 28 years.	Do.	Marfan's syndrome complete. Both lenses luxated into.
1939	Sironi Huciano ...	1	Boy, 11 years.	Do.	Anterior chamber. Scoliosis, dysmenorrhoea, skeletal changes.
1939	Kilgore, G. L. ...	3	Sisters in a family of five, 33 years, 32 years, and 27 years.	Do.	Lenses luxated up and out. Coloboma in each lens below.
1940	Riem Hans ...	1	Boy, 9 years.	Do.	Family was affected with hereditary arachnodactyly.
1940	Lez, C. D. ...	1	Boy, 13 years.	Do.	Lens dislocated superiorly. Fundi negative, arachnodactyly.
1940	Meyer, K. ...	1	Boy, 15 years.	Do.	Typical Marfan's syndrome with all the somatic characters, later on lenses dislocated on the disc.
1941	Kronfield ...	1	...	Bilateral subluxation of lens.	...
1941	Andrew Radd ...	In all 10	(1) Boy, 12 years.	6 cases bilateral, in one unilateral dislocation.	...
1941	Theobald ...	1	Child, coloured, 27 months.	Bilateral ectopia lentis.	Lenses dislocated upward and inward.
1942	Sidney S. Deutch	1	Child 26 months.	Do.	...
1943	Fritzerald ...	1	Male, 25 years.	Do.	Iridodonesis; incomplete kyphosis, prominent mandible.
1944	Lawes, F. A. Halliday, J. C.	3	Female 52 years, female 14 years, male, 6 years.	Do.	All three cases in one family.
1934	Danielson, R. W.	1	Boy, 6 years.	Do. with arachnodactyly.	Partial pupillary membrane in each eye. Nyctagmus worse without glasses.

V: with and 11 Daph 4/30 each eye. Pupils small and displaced towards the limbus, towards 2 o'clock in the right eye and 10 o'clock in the left eye.

Comment.—Reviewing the literature of the last 15 years only 100 cases have been recorded. It shows that the condition is not unusual and the ophthalmic surgeon should always carefully look for the syndrome. In all cases the syndrome is not complete and all cases have not been proved hereditary or familial in nature. Still the hereditary and familial factors are very important. Further investigation is necessary to attribute the true etiological factor to the condition.

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A Case of Eclampsia With Many After Effects

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ONE woman labourer used to attend the hospital as an out-door patient for a week or more. She was anæmic, œdematous and was carrying for about nine months.

On 20-7-'46 morning she came to the hospital as usual and was gossiping with other fellow patients. Suddenly she fell down unconscious with rigorous convulsion, the limbs were throwing in jerks, froths were coming out of the mouth. This stage lasted two or three minutes; after that patient was in a comatose stage. Fifteen minutes after, twisting of eyelids, wrinkles of forehead were seen and the patient again fell in convulsion.

The same stage repeated every fifteen to twenty minutes interval.

General appearance.—The patient was a girl of eighteen to nineteen years, of moderate musculature. She was anæmic, puffy and œdema present at the ankle and dorsum of the feet.

Clinical feature.—(During attack) Patient was in comatose stage, veins were prominent over the forehead, the temperature was 101°F, the respiration hurried, rate 35, pulse volume and tension were high, rate was 130.

Treatment adopted.—(1) The patient was put in a dark quiet room.

(2) Morphine Sulph. gr. $\frac{1}{2}$, Atropine gr. $\frac{1}{100}$ was injected I.M. at 7-30 a.m.

(3) Chloroform was administered to control the duration and number of fits and under chloroform cervix was examined and no dilatation.

(4) After three hours Morphine gr. $\frac{1}{4}$ and Atropine gr. $\frac{1}{100}$ injected intramuscularly and Mag. Sulph. 25% 10 c.c. were given intravenously as the fits were not controlled. Glucose solution 25% 50 c.c. was given intravenously at 12 a.m. and intervals of fits were prolonged.

(5) At 5 p.m. the temperature of the patient shot up to 104°F and fits reappeared at shorter intervals. The cervix was examined and it was in the same condition. She remained in deep comatose condition throughout her course of the illness. Morphine gr. $\frac{1}{4}$, Atropine Sulph. gr. $\frac{1}{100}$ and Mag. Sulph. 25% 10 c.c. were repeated. 50 c.c. of blood was drawn out. Glucose Sol. 25% 50 c.c. was given intravenously.

After that patient was quiet and fits ceased up to 12 p.m.

At 1 a.m. I was called in and found that the patient was very restless, delirious and tossing over the bed, little quantity of urine passed and bowel was moved unconsciously. She cried loudly in agony of pain and the uterus was in toxic contracting stage. The cervix was dilated slightly. Fits again appeared with this and she fell in comatose stage after the attack. Mag. Sulph. Sol. and Chloroform inhalation were again given.

At 6 a.m. on 21-7-'46 patient delivered a dead female child and Pituitrin 1 c.c. was given intramuscularly. The fits were not controlled and appeared four times after delivery. The same treatment was repeated and again 25 c.c. of blood drawn out. After that she remained calm and quiet and slept a sound sleep through out this day and night (21-7-'46).

On 22-7-'46 morning she woke up from her deep sleep and complained of weakness. The temperature came down to 98°F, the pulse rate

95, resp. 23. The patient looked better and was put on milk barley. Glucose Sol. 25% 25 c.c. was given intravenously and simple post-partem mixture was given thrice a day.

On 23-7-'46 nothing abnormal and she was put on same diet and medicines.

On 24-7-'46 the temperature rose up to 103°F, pulse 130, resp. 25. The temperature came with chill and rigor but no pain in abdomen and nothing abnormal about the uterine discharge. Microscopic examination was not possible. The case was taken as a malarial one and ten grains of Quinine Bihydrochloride was injected intramuscularly, followed by three doses of alkaline mixture.

On 25-7-'46 temperature was the same and another injection was given.

On 26-7-'46 the condition was not improved and she was put on Quinine mixture (containing 5 gr. in q.) and alkaline mixture T.D. for three days (up to 29-7-'46).

The patient gradually developed into oedematous condition specially of the left leg and left breast. The leg was so swollen that she could not move it freely and she felt much pain on any movement. The oedema pit on pressure and the skin was thickened and glossy in appearance. The swelling was so great that it extended up to the inguinal margin. The vulva was unaffected. Some days later spontaneous rupture of the skin took place in the medial and lateral aspects of the (left) thigh and profuse watery discharge soaked her garments and she was tired of that. Few days later, her right leg became swollen similarly like the left one. The swelling extended to the abdomen and the back, the whole body became oedematous except the two arms. The temperature was continuous—it rose up to 104°F and came down to 101°F. The patient looked well, in spite of high temperature. The urine was scanty and high coloured. Microscopic examination was not possible. Nothing abnormal was found on other examination. Soluseptasine 5 c.c. 10% I.V. and Cibazol one tablet four times a day was given for a week. Variation of temperature was noticed. After that the rise of temperature was up to 102°F and falling down to 98°F and the swelling of the breast subsided but the conditions of the limbs were the same as before.

The patient was then put on alkaline diuretic mixture containing

R Potass. Acetas.	... gr. xv
Potass. Citras	... gr. xv
Liq. Ammon. Acet.	... ℥ x
Liq. ext. of Punarnava	... 3 ii
Aqua ad.	... 3 i T.D.

Neptal 1 c.c. every other day was given intramuscularly.

After three injections of Neptal, the oedema was markedly reduced and the temperature came down. The oedema totally subsided and temperature came down to normal after seven such injections and continuation of that mixture.

The patient looked better and could walk freely without the aid of others, the urine was free in quantity and colour. She was then put on normal diet.

After a few days she got again swelling of her right breast. The swelling was so marked as it involved the surrounding areas. Redness and hotness were present. Antiphlogestine was applied over the affected area and Sol. Septacin 5 c.c. 10% was given intravenously for three days but all were in

vain. The breast suppurated and a quantity of pus was let out by making an incision. The patient was then put on tonic iron mixture. The wound healed up within a short period and she was discharged from the hospital on 30-8-'46.

Points of interest in this case are the oedematous condition of legs and that of left breast.

If it be due to microfilaria—(a) there should be remission of temp. for a few days, (b) swellings extended upto knee joint, (c) vulva should be affected in filaria.

Diagnostic suggestion about oedema from the members of the profession are thankfully invited.

I am very much obliged to S. N. Sarma, Malariologist, for his kind help in treating this case and publishing the case notes.

An Atypical Case of Purpura

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PURPURA connotes a group of diseases characterised by bleeding into the skin and from mucous membrane. It can be classified into (1) Symptomatic hæmorrhagic states and (2) Essential Thrombocytopenia or Idiopathic Purpura Hæmorrhagica. In its ætiology and pathology very little is given in the literature that it may be due to vitamin K deficiency and the following case will therefore be of interest as it was cured by vitamin K.

Case-report.—A Hindu female, aged 30 years, came to me with complaints of pain in the knee joints for 4 days and bleeding in the skin in the form of petechiæ. The onset was sudden and febrile.

Examination.—The patient was markedly pale. Temperature was normal, pulse 90 per minute and respiration 19 per minute. There was no swelling on the joints but on both legs purpuric patches were present of varying sizes. The liver was not enlarged and spleen was not palpable.

On systemic examinations nothing abnormal was detected. Blood examination could not be done due to facilities difficulty, but coagulation and bleeding time was noted which was 11 and 2 minutes respectively.

Treatment and progress of the case.—Injection of 10 c.cm of 10% Calcinol was given intravenously for 3 days daily and Celin (vitamin C) tablets were given by mouth but no improvement was noted. On the fourth day as patient felt no improvement she went to another physician who gave liver injections but the condition of the patient did not improve at all and now she developed Epistaxis and Hæmatemesis which patient thought to be due to injections. So she again consulted me when I found that the purpuric patches became very marked on the whole body. Then the patient was given Kapilin (vitamin K) with the idea that the bleeding is due to vitamin K deficiency, 2 c.c. of 10 mg. of Kapilin was given by injection daily and Kapilin tablets were given by mouth. The painful joints were given hot fomentation. After six days of treatment patient was much improved. There was no bleeding in the skin, mucosae and internally and no joint pain.

The cause of vitamin K deficiency could not be found out but clinically the case showed that purpura was due to vitamin K deficiency.

A Chronic Case of Infantile Beri-Beri

CH. KRISHNAMURTY,
Assistant Surgeon, Narsapuram (Vizag Dt.).

A. N., a male child, now aged 1½ years, was brought to me on 30-6-'46 for chronic enteric catarrh, frequent crying, occasional attacks of fever and cough, spells of unconsciousness and anæmia. Previous history in the words of the father of the child, a graduate teacher—

"About the middle of November 1945 the child was noticed to feel uneasy, crying always, now and then becoming senseless, passing green hard stools mixed with mucus. The child was treated by an Allopathic doctor, spells of unconsciousness relieved but the trouble with the bowels remained the same. Homeopathy was next tried, this restored the yellow colour for the motion, but not the mucoid sticky nature of the stool. He is now attacked with cough and another Allopathic doctor was engaged, the cough subsided, but the defect in the motion remained as it was. The treatment is now changed to Ayurveda and the child began to become pale and bloodless and finds difficulty to swallow castor oil. The defect in the motion became worse, the green stain on the white cloth could not be erased even by washing with caustic soda. Ayurvedic treatment continued for a month and a half but the child began to get worse. The child now used to lie always inactive disinclined to suck breast milk, bloodlessness increased."

At this stage the child was brought to me 8 months after the child became ill and treated as above. The child was pale and anæmic, more or less waterlogged and looking like a case of acute nephritis. The stool was as stated by the parent, urine showed no albumin or casts, motion no ova or amœba but there was slight cellular exudate, no enlarged liver or spleen, no abnormality in the lungs. Heart sounds rapid and pendulum like. Taking it to be infantile beri-beri, I started the child on injections of Thiamin 10 mgrs. on alternate days and mixture 01. Ricini, and grey powders internally. After about 2 weeks' treatment the child began to show signs of improvement, there was no intermittent crying or spells of unconsciousness and the motion acquired a yellow hue. There was not that passing of hard green scybylæ with mucoid threads and instead, he used to have 2 or 3 which was controlled by M & B 693 orally. Thiamin tablets were also given by mouth 6 mgrs. a day on days when he was not injected Thiamin. As the child's resistance was very low, Calcii Ostelin (Glaxo) was injected alternately with Thiamin starting with ½ c.c. and increasing to 1 c.c. intramuscularly. The child continued to improve and now injections of liver extract were started mixed with Thiamin. The child had in all about 400 mgrs. of Thiamin, 10 c.c. of Calcii Ostelin and 10 c.c. of P. D. & Co. Liver Extract in 42 injections during the period of 1½ months. The child is now a picture of health, chubby and playing, cured of all the signs and symptoms with which he came in. He is now on Shark liver oil emulsion and Syr. Ferri. Phosco. to strengthen him further.

This appeared to me rather an unusual case of infantile beri-beri coming in a moribund condition after exhausting all sources as a last resort. Persistent treatment patiently given and taken, perhaps saved the child.

An Interesting Case

K. D. BHALE RAO, L.M.F.,
Medical Practitioner, Raipur, C. P.

A boy, aged 10, came under my treatment on the 9th August 1946, for continuous fever and acute pain situated at the base of the right lung, radiating anteriorly towards the upper abdomen. The pain used to get aggravated when he attempted to sleep on the back or on his left side.

From the history it appeared that the boy was getting fever and pain for about ten days before he came under my treatment. He was then treated as a case of malaria and was being given Quinine by mouth 12 grains per day for about six days. This had no appreciable effect both on his fever and pain.

The temperature used to range between 100°F in the morning and 102°F to 103°F in the evening.

On clinical examination, I found that the part covering the last three ribs on the right side and two fingers breadth below the right hypochondriac region was extremely tender. There was definite impaired resonance on percussion and impairment of breath sounds on auscultation at the right base. Liver and spleen were not palpable. The heart sounds were normal. His blood slide was taken and sent for examination which was found to be negative for malaria and the differential leucocytic count showed a definite increase in the polymorph nuclear leucocytes. Urine and stool examination showed no abnormality.

He was now put on Cibazol tablets three per day and alkaline diaphoretic mixture. Saridon tablet was given whenever the pain became acute.

His chest was screened and was found to be quite normal in so far as the right lung and the pleura were concerned.

Antiphlogestine was applied to the right base to relieve the pain.

In spite of all this, there was no change in the range of temperature and pain; and as such the Civil Surgeon was called in for consultation. He could not be definite but thought it to be a case of either diaphragmatic pleurisy or a perinephric abscess. He advised a course of Penicillin injections and accordingly Penicillin was given to the boy every three hours. The total amount of Penicillin that was given was 300,000 units in three days. This had some appreciable effect both on his temperature and pain. The range of temperature now was between 99°F and 101°F only. The intensity of pain was also less though of course it did not completely disappear. As the fever did not subside, Penicillin and Sulpha drugs were discontinued and he was put on simple alkaline mixture and a plain tepid water enema every day. Every time when enema was given, the boy used to pass large quantity of faecal matter. The stool was sent for examination a second time, but this time also it was negative and showed no abnormality.

As the enema was being continued every day, to our great surprise, one day i.e., on 18-8-'46, the boy passed a roundworm measuring about 9 inches. After this, the next day I found that both the pain and fever had disappeared and the boy was quite normal. He was given Santonin

(661)

powder the next day but did not pass any worm. He passed one more worm on the 30th August 1946.

The boy has been recovering satisfactorily since then. This is a very interesting case in so far as the real diagnosis is concerned. It is difficult to say as to what probably was the real cause of trouble. Whether the boy was suffering from diaph. pleurisy and the round worm infection was a secondary factor, it is difficult to say.

But any way, the case would be found of interest to the medical profession from whom any comment on the case will be greatly appreciated.

Allergic Reactions to Liver Extract

INDER DEV, L.M.S.,
Sir Ganga Ram Hospital, Lahore.

D. N., aged 55 years, consulted me for his growing weakness. On examination it was found that he was suffering from anæmia. His Hb was 35 by Sahli's hæmoglobinometer, and R. B. C. count was $1\frac{1}{2}$ million per c.mm. Detailed examination of blood could not be carried out. He was given a highly refined concentrated liver extract 2 c.c. by intramuscular injection, besides iron, and vitamin C by mouth. The liver extract was repeated after one week. Just after the injection the patient felt colicky pain in the abdomen; he passed two or three motions and felt very weak. After one week, again the injection of liver extract was given but this time Adrenalin 0.5 c.c. was given subcutaneously at the same time. The patient did not complain of any trouble. Again after a week the liver extract, (same brand) was given but no Adrenalin. The patient got the same symptoms again but was relieved on giving Adrenalin. After this the patient was put on a crude liver extract of a different brand. He did not develop any untoward reaction. It may be added that the patient did not complain of any diarrhoea or dysentery in his past history.

Comments.—A highly purified liver extract was used which generally has the advantage of freedom from untoward reactions but in this case it gave rise to these reactions. The same brand from the same batch given to other patients did not give rise to these reactions. The reactions occur within a few minutes after the injection of the liver extract. These reactions vary in kind and severity. They may give rise to pain and local reactions, acute fall of blood pressure, and allergic manifestations such as flushing of skin, urticaria, dyspnoea, generalised erythema, severe asthma, and alarming collapse. Nowhere to my knowledge the reactions given above have been described. None of the above mentioned reactions were present in this case. The allergic state is generally transient and reactions do not occur with subsequent injections but in this case the allergic state persisted. Again the changing of the brand is seldom successful and one has to choose between oral therapy and desensitization, but in this case the changing of the brand proved to be effective.

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Diphtheritic Conjunctivitis

(Membrane Conjunctivitis)

D. N. GOEL, D.O.,

Offg. Ophthalmic Surgeon, Maharaja Gulab Singh Hospital,
Jammu (Tawi), Jammu and Kashmir State.

ROMESH Chandra Sethi, s/o Mr. Dwarka Nath Sethi, aged about 10 months, of Jammu proper was having eye trouble for about four days and was getting treatment from the local chemists and general practitioners. He was treated with eye drops and Silver Nitrate solution touch, but the boy did not show any improvement within four days of treatment. The boy was brought to the hospital on 30-8-'46 when on routine examination I found the palpebral conjunctiva was covered with a white fibrous membrane and ocular conjunctiva was free. The eye was swollen and the baby could not open it. On opening the eyes there was a lot of watery discharge in both the eyes. Both the cornea were clear which was observed after retracting the lids with the lid-retractors. The boy looked very ill. I tried to remove the membrane with a cotton swab, but I could remove the whole of it by to and fro movements of the swab only. Just below the membrane the conjunctiva bled very much. The membrane was continuous and not patchy. The temperature of the body was 101°F , arm-pit. Pulse was rapid, his lungs were clear, urine could not be examined, he was passing loose motions two or three times daily. No complaint for the throat was brought to my notice but during my examination I observed typical cough of diphtheria. On examination of the throat I found that there was membrane of diphtheria on the anterior pillar of the fauces. There was not enlargement of the glands of the pre-auricular region. The microscopic examination of the membrane was not done, nose was clear, the case was diagnosed as a case of diphtheria of the throat and eyes.

The following treatment was adopted for the above case with successful results:—

- (1) Hot irrigations and fomentations with boric lotion, after removing the membrane (twice daily).
- (2) Quinine Sulphate 3 gr. to oz. solution dissolved in a little of Tartaric acid was used as a paint on the palpebral conjunctiva after removing the membrane and fomentations (twice daily).
- (3) Atropine 1% solution drop (twice daily).
- (4) Iodoform gr. 1 and Sulphonamide (fine powder) gr. 40, well mixed, was used as a dust on the palpebral conjunctiva (twice daily).
- (5) 8,000 units of Diphtheria Anti-toxin, P.D. & Co., was used as an intramuscular injection twice on the first day (16,000 units in 24 hours).
- (6) One tube of 8,000 units of Diphtheria Anti-toxin was used as an eye drop (twice daily).
- (7) Throat was cleaned with Hydrogen Peroxide swab and then Mandal's paint was applied on the throat.

After 24 hours the boy looked better, the membrane was less formed on the palpebral conjunctiva and was removed as before and all the above treatment was repeated (twice daily) except the injection of Diphtheria

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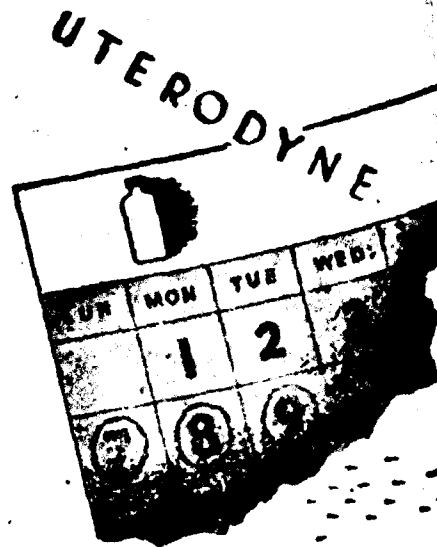
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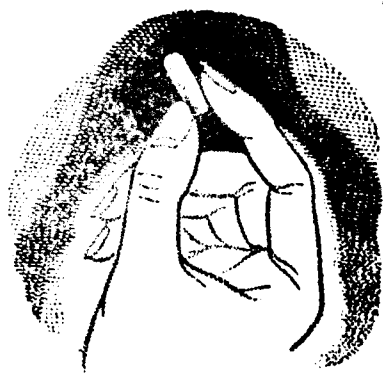
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Conference of Public Health Ministers

It is not even six weeks since the National Government assumed the reins of administration in this country. Within this short space of time many major decisions of a far-reaching character have been taken. The Minister for Public Health has taken the very right step of convening a Conference of Public Health Ministers of Provinces and, we believe, the major States as well, to consider the report of the Bhore Committee and to devise ways and means to implement the recommendations made therein. This is as it should be, for the public health of India is an all-India matter, and it is the realization of this fact that induced the Central Government to appoint an All-India Committee to investigate the matter and make suitable recommendations to ensure the public health and well-being of the people of this country. May be the Provinces have absolute autonomy and the Public Health Departments are under their control. But if they are left to themselves to take such action as they may deem fit there would be lacking that very necessary co-ordination which is required to tackle the problem satisfactorily. For instance, some Provinces may consider some of the recommendations important and give them priority leaving the rest to bide their time; some other Provinces may think otherwise and give priority to some matters to which only a secondary place has been assigned by the other Provinces. Besides, there is the question of finance. Our readers will remember that the Bhore Committee has made two sets of recommendations, one short term and the other long range, entailing a huge expenditure. It is a well known fact that the financial positions of the provinces vary to a very great extent. Some Provinces are fairly well off to carry out the recommendations of the Committee, while others are in a bad way, depending upon doles from the Central Government even to carry on the day to day administration. These latter Provinces are not likely to be enthusiastic in giving effect to the recommendations of the Committee for the simple reason that the finances of the Province will not permit it. And the lack of public health in some Provinces due to the failure of the respective governments to give effect to the recommendations of the Committee is bound to react unfavourably on other Provinces which have taken steps in this behalf. Therefore the problem can be satisfactorily tackled only on an all-India basis and we trust that the Provinces, instead of taking a narrow view of their powers and

the Surgeon General with the Government of Madras, some advance is contemplated. Now that the war is over and facilities for obtaining the required equipments are available, it should be possible to equip at least the major hospitals with the necessary facilities for the early detection and treatment of cancer cases. We trust that the Conference will, in addition to the various items included in its agenda, give special consideration to these two great problems and decide upon effective steps to meet the growing menace. If they do this, they would have gone a great way towards the betterment of the public health of the people of this country.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Bed-rest in tuberculosis.—The pitfalls, dangers and abuses of bed-rest have been discussed in current medical journals by authorities in many fields.

Current interest in the dangers from bed-rest challenges those who treat tuberculosis with bed-rest, which is the accepted and approved treatment.

The dangers of bed-rest in tuberculosis are: (1) pulmonary infarction; (2) inadequate drainage of pulmonary lesions; (3) emotional maladjustment and (4) improper correlation with collapse therapy.

(1) *Pulmonary infarctions*: This has been regarded as a danger of paramount importance in people kept abed. The Wm. H. Maybury Sanatorium with 815 beds has employed bed-rest and collapse therapy for almost twenty years. Approximately one-half of the patients at any time are not allowed to leave their beds for any reason.

During 18 years, among the 751 post-mortem examinations there have been signs of pulmonary embolism in 11 cases, an incidence of 1.5 per cent. Nine of these came from terminal patients. The other two patients had a poor, but not necessarily hopeless, prognosis. Thus in only two instances could infarction appear to have contributed to the fatality. From the experience, pulmonary infarction does not appear to be a danger of great consequence to the tuberculous patient.

(2) *Inadequate drainage of pulmonary lesions*: Bed-rest may mean many things to many people. To some the only limitation on the activity of the patient is that he remain in bed. This is bed-rest in name only and is relatively inert therapeutically. To others it has an increasing therapeutic value as absolute immobility is approached. Unreasoning adherence to this concept fails to allow for pulmonary drainage, especially cavity drainage.

In many sanatoriums so-called "postural rest" is applied to patients with unilateral cavitation. The patient is encouraged to lie on his "cavity side" to protect the less involved lung from positive sputum. The shovelling of iodized oil in the chest during

cough suggests that the entire tracheobronchial tree, in the presence of cavity, may be bathed frequently in cavity contents, and thus be contaminated with tubercle bacilli. It would seem then that "postural rest" encourages stagnation of sputum which should be drained.

(3) *Emotional maladjustment*: It is a rare person who can accept undaunted a diagnosis of tuberculosis. For him this is a catastrophe of world-shaking magnitude. He could well use the services of a psychiatrist, a sociologist and a philanthropist. Many patients adapt themselves, but in others tenseness, apprehension or despondency are common, as are complaints of muscular pains and exhaustion. Cough may be unnecessarily severe. In this way the patient fails wholly to take bed-rest although he remains in bed. That such patients tolerate bed-rest poorly in no way relieves us of our responsibility. Proper bed-rest is too valuable a tool to be used in a haphazard and reckless way. It is wholly worthy of the physician's best attention.

(4) *Improper correlation with collapse therapy*: Bed-rest and collapse therapy are integral and complementary parts of the sanatorium regimen and allow no competition. A well-balanced therapeutic program for the tuberculous patient employs all proved methods of treatment, combining them as judgment and experience indicate.

*Bed-rest is the foundation therapy and upon its integrity depends the success of the entire treatment. When of high quality, great confidence may be placed in it, and collapse procedures may be added immediately, deferred or withheld, depending on the indications. With a well equipped collapse program, exacerbations appear to be related more often to improper rest than to any other factors.

Krause had defined rest as relief from strain. In bed-rest, mental repose and muscular relaxation are vital features and any rest regimen without them cannot be considered a therapeutic procedure. It is a sensitive therapy which reflects the care and finesse of its administration. It is a medical

problem to be handled only by physicians of proper temperament and training.

Much time must be spent with a patient in helping him to become adjusted. Psychological, social and economic problems must be discussed with him and simplified. He must be indoctrinated with a philosophy which permits him to accept his disease with equanimity and to submit completely and cheerfully to rigid discipline. Thus the seeds for future rehabilitation are planted at the very inception of treatment and many troublesome emotional maladjustments avoided.

Muscular relaxation comes unnaturally to many patients and may be taught only by daily, painstaking repetition. Once achieved, rest in bed becomes pleasant and comfortable. Great insistence should be placed on change of position frequently enough to insure adequate drainage of all parts of the chest. This will involve lying in prone, supine and both lateral positions. Stasis of contaminated secretions in normal areas of the lung must be avoided just as zealously as drainage of diseased areas is encouraged.

Good bed-rest, accordingly, is a precise method of treatment with clear-cut specifications and is based on three fundamental principles: mental repose, muscular relaxation and adequate drainage. Other details are less important and may vary with the type of nursing care available—this without materially affecting final results. The excuse that facilities for good bed-rest are lacking can be rarely substantiated.—*Medical Women's Journal*.

Electroencephalographic studies in diabetes mellitus.—Diabetic patients in general do not suffer from epileptic phenomena more than do members of a normal group. In clinics in which large groups of diabetic patients are studied, however, a small but nevertheless significant fraction of cases presents extreme difficulty in control by routine methods, and requires special attention. These patients are inordinately sensitive to relatively minor changes in the blood-sugar level, and their clinical reactions are disproportionately severe. The manifestations of insulin sensitivity are highly variable.

In cases of this kind it is of both theoretical and practical importance to know what role the nervous mechanism plays in the fundamental instability. Because the changes primarily involve carbohydrates, the chief foodstuff of the brain, one is naturally inclined to suspect disordered function within the central nervous system. From the clinical point of view, many of the reactions involve abnormal but co-ordinated motor manifestations or specifically suggest epilepsy. Other reaction patterns, such as unconsciousness, point incontrovertibly to abnormal cerebral function.

The electroencephalographic evidence supports the theory that severe repeated insulin reactions are due not only to unstable carbohydrate regulation but also to unstable cerebral, and specifically cortical, function as well. Some of the electroencephalograms

obtained were indistinguishable from interval patterns in patients suffering from grand-mal epilepsy. The incidence of abnormal or atypical brain wave-tracings in the unstable group of diabetic patients is too high to be due merely to chance.

The observations established the fact that the central nervous system plays a leading role in the instability of patients with so-called "problem diabetes" or diabetes regulated with great difficulty. In this group the possibility of cortical instability should never be neglected in evaluating the functional difficulties of the patient, and by implication, proper treatment should encompass proper management of the central-nervous-system disorder. The electroencephalogram may be invoked as a valuable aid in studying diabetic patients with frequent severe insulin reactions.

GREENBLATT, M., MURRAY, J., and ROOT, H. F.: Electroencephalographic studies in diabetes mellitus. *New England J. Med.* 234: 119-121, January 24, 1946.

Na. Med. Bull.

Prolonging the action of penicillin.—Within an hour after intravenous injection of penicillin, fully 80 per cent of the injected dose is excreted in the urine. The penicillin titre of the blood stream falls to zero before the end of the second hour. As a result of the evanescent character of this drug, many of the earlier clinical cases failed of cure.

The first successful method of prolonging the action of penicillin was by excretory blockade. This was effected by the simultaneous intramuscular injection of diodrast or of p-aminohippuric acid. Both of these substances reduce the rate of renal excretion of penicillin of about two-thirds. As a result of this reduced excretion, the penicillin titre of the blood stream is maintained at a therapeutic level for nearly six hours.

The second successful method of accomplishing the same result was by suspending penicillin in some inert oil that would slow down the rate of absorption from locally injected tissues. A mixture of peanut oil and from 1 to 6 per cent of beeswax gave the best results. Intramuscular injection of 50,000 Oxford units in 2 to 2.5 c.c. of beeswax-peanut oil slows down the rate of absorption from the injected muscle so as to maintain an effective therapeutic level in the blood stream for a period of from six to seven hours. The mixture was tested on 65 patients with gonorrhoeal urethritis, 64 of whom were cured by a single intramuscular injection.

A third successful method is currently reported. This is based on an attempt to delay absorption by prolonged vasoconstriction in the injected muscle. Vasoconstriction effected by an ice bag applied to the deltoid region two hours before the intramuscular injection and replaced for a period of six to twelve hours after the injection. With this technique, a single intramuscular injection of 50,000 units of penicillin in saline solution maintains an adequate bacteriostatic level of penicillin in the blood stream for from

six to twelve hours. Thus far, the chilling technique has been applied to 18 gonorrhoeal patients, 17 of whom were cured by a single intramuscular injection. Application of an ice bag, two hours in advance of the injection renders the injection painless.—*Jnl. of A.M.A.*, Jan 20, 1945.—G.P.

The gold treatment of pulmonary tuberculosis.—There appears to be an almost general agreement that gold therapy is valuable if it is used conservatively and is employed only in those types of cases in which by wide experience it has been shown to evidence response. The best response, is to be expected in the more acute types of infection; that gold salts are valuable adjuvants to collapse therapy, particularly in preventing spread to the contralateral lung; that the presence of cavities is the greatest single factor against its success; and that severe reactions may be prevented by carefully controlled dosage. Gold salts are primarily intended for the treatment of pulmonary tuberculosis, the best results being obtained in early or moderately advanced cases of the exudative type. Chronic proliferative cases do not appear to derive any great benefit from the treatment. The patient should be kept under careful observation. Treatment with gold is contraindicated in the presence of organic disease of the heart or kidneys or pronounced intestinal tuberculosis, and in cases manifesting high temperature or marked cachexia, regardless of the degree of tubercular involvement.

Treatment usually consists of a series of progressive doses given at intervals of a few days and adjusted according to the tolerance shown by individual patients. Injections are usually given in the form of an aqueous solution administered intravenously. It may be given in the form of an oily suspension intramuscularly. The results of treatment with gold are observable in: (1) an improvement in the blood sedimentation rate; (2) its favourable effect on the sputum, which in a high proportion of cases becomes negative; and (3) a disappearance of areas of infiltration and their replacement by a greater or lesser degree of fibrosis.—*Prescriber*.

Clinical uses of the various insulins.—Benjamin Saslow, M. D., Newark, N. J.

Insulin provides chiefly for the utilization of carbohydrate absorbed from the intestinal tract and dextrose which enters the circulation from the liver. Dosage of insulin depends upon two main factors: (1) Degree of insulin deficiency in the pancreas. (2) Intensity of mechanisms opposed to insulin. Among the latter may be mentioned: (a) rate of supply of dextrose from food; (b) effect of endocrins antagonistic to insulin, such as the pituitary, adrenals and thyroid; (c) effect of infections; (d) presence of recent or coincident acidosis; (e) abnormalities of liver function; (f) variations in irritability of the autonomic nervous systems; and (g) presence of insulin-sensitivity or insulin-resistance.

Unmodified insulin.—Insulin is an amorphous protein soluble in water when prepared as a hydrochlorid. Zinc salts of insulin are crystalline in nature and are commercially available under the name of "solution of insulin crystals." Because of its greater chemical purity the latter variety is especially indicated for patients who exhibit allergic reactions to amorphous insulin.

The consensus is that insulin of amorphous origin may ordinarily be interchanged with the variety prepared from zinc insulin crystals and differs inconspicuously from it in activity. In this paper the term *unmodified or regular insulin* will refer either to the amorphous or the crystalline variety.

In the practical clinical consideration of any insulin three properties are important, viz.: (1) initial effect, (2) maximum effect, and (3) completion of effect.

The hypoglycemic effect of unmodified insulin begins one to two hours after injection, exerts its maximum effect in two to four hours and is completely spent in four to six hours. This type of insulin should be employed where rapid or powerful action is desired and is especially indicated in emergencies, acute complications or where insulin requirements fluctuate rapidly. In severe cases, fasting blood sugar levels treated with regular insulin are characteristically elevated but fall during the day if insulin is injected prior to meals.

Protamin zinc insulin.—Protamin zinc insulin, first made available in 1937, is a combination of insulin, protamin and zinc. Protamin is a relatively non-antigenic polypeptide obtained from the sperm of rainbow trout or salmon. Zinc which is added to the amount of 1 mg. per 500 units stabilizes the protamin-insulin combination, slows its absorption and prolongs its effect. This metal is present in too small an amount to exert toxic action.

Protamin zinc insulin is almost insoluble at the pH of body fluids and thus absorption is delayed, activity prolonged and insulin released at a constant rate for a period of one to three days from a single injection site. Initial effect begins in two to three hours and maximum action occurs in 18 to 24 hours. When protamin zinc insulin acts longer than one day, it is important to remember that the final effect of one day's dose may be superimposed upon the first effect of the dose given the following day.

Advantages of this insulin over the unmodified type are: the number of multiple injections is reduced, glycosuria and hyperglycemia are usually better controlled, violent insulin reactions are infrequent, less rigid control of the dietary factor is necessary, unphysiologic undulations of blood sugar levels occur less often and the decreased azoturia and ketonuria probably represent better sparing of tissue proteins.

Because of its slow and prolonged action, protamin zinc insulin should be regarded as basic in most cases; but by the same token it predisposes to post-prandial hyperglycemia and glycosuria.

In patients responding adequately to protamin zinc insulin, blood sugar before breakfast is normal and, except in very mild cases, ascends during the day because active insulin is released too slowly to overcome the hyperglycemic effects of food.

Generally speaking, patients who have relatively mild cases, and whose requirements range between 30 to 40 units per day, do well with a single daily dose. It is most commonly given before or after breakfast but ordinarily it does not matter much what time is chosen *providing that this time is regularly maintained* and the arrangement of the meals is optimum and not altered.

Severe or moderate diabetes cannot be controlled with a single daily injection of protamin zinc insulin even when a relatively large night feeding is employed to prevent nocturnal hypoglycemia. This problem has been met in a satisfactory manner in many instances by giving a large dose of protamin zinc insulin and a smaller dose of regular insulin both before breakfast. Occasionally an accessory dose of regular insulin must be added before or after lunch or dinner. Thus the prolonged activity of protamin zinc insulin is utilized to prevent nocturnal hyperglycemia while the unmodified insulin tends to combat the rise of the blood sugar after meals. However, in many cases even this method fails to regulate the patient.

Two commonly overlooked symptoms of protamin zinc insulin reaction are morning headache and a feeling of exhaustion.

Globin insulin.—Globin insulin is a new tool in the treatment of diabetes. It is an artificial chemical combination of ordinary insulin, zinc and globin prepared at a pH of 3.4 and is water-clear. Globin is a weakly antigenic protein and is obtained from the hemoglobin of beef blood. It exerts its initial effect two to three hours after injection and maximum action occurs eight to twelve hours later. Thus it lies somewhere between unmodified and protamin zinc insulin in activity. When given once a day it is customarily injected before breakfast and thus maximum effective action occurs when the meals are being eaten and the patient is active and awake. During the night, its action wanes and this is particularly desirable as the effects may occasionally carry over beyond twelve to eighteen hours.

Occasionally protamin zinc insulin will seem to exert very little effect on a fasting high blood sugar. When globin insulin under such circumstances is given twice a day, such circumstances are given twice a day, such before breakfast and before supper, this will often take place. When a fasting blood sugar is maintained at a normal level with protamin zinc insulin, switching to globin insulin once a day has been generally unwise. Blood sugar under such circumstances often rises.

Globin insulin will generally clear up local allergic reaction in patients on protamin zinc insulin.

Unit per unit, globin insulin seems to be more effective than either regular or

protamin zinc insulin. It is wise not to give more than half the dose of protamin zinc insulin initially when making this transfer and even smaller doses are judicious when the patient is unreliable as to diet.

This insulin should not be used initially in infections, acidosis, pregnancy or diabetic surgery because of its unpredictability as to the time and extent of hypoglycemia.

The arrangement of the carbohydrates in the meals is particularly important when globin insulin is used and experience has taught us that if sufficient carbohydrate is not available when it begins to exert its effect, the blood sugar may fall precipitously and induce severe symptoms.

The carbohydrate portion of the meals should be highest at noon to buffer its effect and it is best to add a small carbohydrate feeding about 3 p.m. However, each case must be individualized and no rule can be given for the number of units required or arrangement of the meals. Chief difficulty with this type of insulin seems to be the sudden onset of severe insulin reactions unheralded by the usual premonitory symptoms and signs. These hypoglycemic effects may occur even when anticipatory carbohydrates have been given and shock symptoms and their times of occurrence change not infrequently without cause.

Most insulin reactions occur in the late afternoon.—*Jour. Med. Sci., N. J.*

Streptomycin in the treatment of a case of persistent urinary infection.—H. G. Jacobi (*New York State Journal of Medicine*, 46: 883, April 15, 1946) reports the use of streptomycin in the treatment of a case of urinary infection persisting almost six years after a transurethral prostatectomy. The patient had persistent pyuria during this period and repeatedly developed calculi, four major operations being necessary for their removal. The infecting organism until shortly before the last operation for calculus was *bacillus proteus*; then this organism was displaced by *bacillus pyocyaneus*. Neither the sulfonamides nor penicillin controlled either type of infection. Streptomycin was employed in a dosage of 500,000 units for the first two doses followed by 250,000 units every three or four hours. Determination of the blood and urine concentration of streptomycin showed that the concentration was well maintained in the blood by the four-hour schedule, but there was a temporary reduction in the concentration in the urine on this schedule. The three-hour schedule was employed for most of the period of treatment. The urine cleared completely twenty-four hours after the streptomycin therapy was begun when 2,500,000 units had been given; the total dosage was 20,000,000 units. The infection, which had been resistant to all other forms of treatment, cleared up completely, repeated cultures being sterile. There were no toxic reactions to the drug. The author suggests the possibility of using streptomycin prophylactically in cases where

prostatectomy or other genitourinary surgery is indicated.—*Medical Times*.

Interesting features in a primary tuberculous focus in the lung.—J. G. Sleeman, M.J. Australia 1: 589 (June 9) 1945.

A nurse having three negative reactions within a period of eight days to Mantoux tests applied during the third week of her employment in a tuberculosis sanatorium and having a roentgenogram of the chest, taken on the twenty-first day of her employment, which showed nothing abnormal had signs of constitutional illness six weeks after beginning service in the sanatorium. This constitutional disturbance was accompanied with inflammation at the sites of the Mantoux tests, and with axillary adenitis on the side in which the greatest strength of old tuberculin had been used. Fever disappeared after one week of rest in bed. Six weeks later a tuberculous abscess of the involved axillary lymph node was opened, and the nurse has remained well since then. A roentgenogram of the chest taken two months after the first signs of illness showed a fairly discrete rounded opacity 1.5 cm. in diameter, just lateral to the right cardiac border. On the course of events in this case, the author makes the following observations: (1) the presence of a pulmonary primary complex indicates the lung as the portal of entry of the infection; (2) the development of illness three weeks after a roentgenogram known to reveal no abnormality indicates that three weeks is the longest period over which infection and sensitization could have occurred; (3) the persistence of old tuberculin at the site of injection for so long is of interest; (4) the employment of negative reactors to the Mantoux test in tuberculosis sanatoriums is not desirable; (5) the development of an axillary abscess suggests that injury to the lymph node produced by material resulting from the interaction of old tuberculin with antibody at the site of injection was responsible for the localization of the bacillema in the lymph node.—*A.J.D.C.*

Prognosis and late complication of diabetes in children.—Hans Rosenbusch, Ann. paediat. 164:225 and 281, 1945; 165:12, 1945.

1. The prognosis of diabetes in childhood—taking a long view—is, in spite of the progress of dietary and insulin treatment, more adverse than had originally been expected. Late complications, arising after fifteen to twenty years, have already been described in the American, but very rarely in the European, literature.

2. The writer's own mortality statistics are discussed in comparison with other statistics.

3. The diabetic child's mental attitude is generally normal; the presence of above average intelligence could not be ascertained. Psychopathologic behaviour in a number of patients may show disastrous effects.

4. A number of functional disturbances along with the diabetes makes one consider

the possibility of a parallelism on the basis of multiple degenerative stigmas.

5. With regard to the somatic development, height below the average was frequently observed. The endocrine causes are discussed in connection with the syndrome of glycogen disease (von Gierke) and diabetes.

6. Among the late complications one is impressed, apart from the well known occurrence of tuberculosis, with the frequency of diabetic nephropathy. This may manifest itself also in diabetic children in the form of intercapillary glomerulosclerosis as described by Kimmelstiel and Wilson. The author includes a detailed description of some cases belonging to this group. Polyneuritis diabetica does not seem to be very rare in young persons with diabetes.

7. Ocular complications are found fairly frequently in growing diabetic children during systematic investigations. Examination with the Gullstrand slit lamp revealed in a great number of cases after a few years the existence already of a density in the first zone of discontinuity (Vogt), which may perhaps be understood as an early sign of diabetic complications or at least as the first signal of an insufficiently balanced metabolism.

8. With regard to the therapy, an early and very carefully increasing insulinization seems to be the primary condition, in order to avoid serious disturbances of metabolism and endocrine balance.—*A.J.D.C.*

Infectious hepatitis.—"Qualitatively the clinical features observed in 200 cases of infectious hepatitis were remarkably constant, consisting of an acute febrile prodromal period with an average of 6.2 days' duration before the onset of clinical icterus. Quantitatively, however, there were differences in the severity of symptoms ranging all the way from slight malaise in some patients to a state of toxemia in exceptional cases not unlike that seen in acute yellow atrophy.

"In three groups of patients receiving supplements of methionine, choline, and crude liver extract, respectively, and a diet high in protein and carbohydrate and moderately low in fat, no evidence of an accelerated recovery was obtained over that of a control series receiving the diet alone.

"Prompt hospitalization and relative freedom from activity appeared to be of paramount importance in speeding recovery from hepatitis.

"... 18.5 per cent showed a mild to moderate recrudescence following a period of apparent clinical recovery. In 82 per cent of these cases the recrudescence occurred following a period of activity occasioned by a grant of liberty or temporary discharge from the hospital. All patients in this group showed an eventual relief of clinical symptoms and normal tests of hepatic function after an average period of twenty days' additional hospitalization."—Hoagland, C. L. and Shank, R. E.—*J.A.M.A.* 130:10 (March 9) 1946.—*Bull. New Eng. Medical Centre*.

Sudden death from straining—Due to pulmonary embolism.—"The emphasis of this type of vascular strain... (acts of defecation, parturition, coition, lifting, straining at work or in sports)... has been placed on the heart.

"Our explanation... for this mode of release of mural thrombi that so often lie in the leg veins is in the observed facts that venous pressure and volume in the leg rise sharply during a Valsalva experiment. Associated with this rise in venous pressure, the return of blood to the heart is temporarily impeded so that the peripheral veins become distended with blood, which may loosen an insecurely attached mural thrombus. With the drop in venous pressure during the next inspiration the dammed venous blood rapidly empties from the peripheral veins, washing with it any loosely attached thrombus.

"The application of this concept in the care of bed patients is obvious. The patient should avoid forced expiration with the glottis closed, especially in the sitting position in bed."—Chapman, E. M. and Linton, R. R. *J.A.M.A.* 129:196 (Sept. 15) 1945.—*Bull. New Eng. Med. Centre*.

Correlation of symptomatology with enterozoic parasitism in children.—Royal L. Brown, *J. Pediat.* 26:291 (March) 1945.

An independent correlation of symptomatology with parasitism was made on 345 parasitized 6 week to 12 year old patients of the pediatrics department of the Philadelphia General Hospital.

The survey showed that 7 of the 41 patients with endameba histolytica had acute, moderately severe, nonfulminating dysentery with five to fifteen copious, loose daily stools accompanied with tenesmus. Tenderness of the right iliac fossa was present in all 7. Eleven others had recurrent diarrhea with intermittent constipation. Twenty-three were asymptomatic carriers. Thirty-four (83.9 per cent) of these patients with amebiasis had on admission no symptoms ascribable to parasitism. Emetine hydrochloride and carbarsone gave good therapeutic results.

Endameba coli, *endolimax nana*, *iodameba butschlii* and *dientameba fragilis* in cases without significant hyperparasitism produced no ascertained clinical symptoms.

Fifteen of the 165 patients with giardiasis had acute generalized abdominal aches and pains, intermittent diarrhea and constipation. All 15 were inattentive, irritable and moderately flatulent. Twenty-three had had repeated diarrhea suggestive of giardiasis. The remainder (77 per cent) were and had been free from symptoms of giardiasis. Quinacrine hydrochloride relieved the acute symptoms and decreased the density of parasites. One child with innumerable *Chilomastix mesnili* organisms and another with many *Trichomonas hominis* organisms had diarrhea without other determined cause. No treatment was instituted.

Two of the 3 patients with ascariasis had abdominal aches and tenderness and colicky epigastric episodes. They were underweight.

The third patient had no symptoms of ascariasis. Hexylresorcinol relieved the symptoms; several worms were discharged during treatment.

Twenty of the 21 patients with enterobiasis had puritis ani, with disturbed sleep and inattentiveness. Gentian violet medicinal was therapeutically effective.

One patient infected with *Trichuris trichiura* had acute symptoms of periodic diarrhea, tender colon, anemia and malnutrition; the other had no such symptoms. Hexylresorcinol relieved these symptoms during hospitalization.

Only 4 of the 6 patients infected with *Tenia* sp. had flatulence, constipation and diarrhea, malnutrition, erratic appetite and abdominal tenderness. Aspidium gave good therapeutic results.

Stools from children with gastroenteritis of causation other than parasitism had comparatively few parasites. Infections of the upper respiratory tract were more frequent in parasitized (50.5 per cent) than in non-parasitized (32.3 per cent) children; similarly, recurring infections of the upper respiratory tract were correspondingly higher.—*American Journal of Diseases of Children*.

Folic acid in megaloblastic anemia in infancy.—Zuelzer and Ogden conclude from a study of 25 infants with a macrocytic anemia that a characteristic dysplasia of the marrow encountered in these patients and the specific response to a hemopoietic factor contained in liver extract, folic acid concentrates and pure folic acid constitute criteria for recognition of a distinct syndrome of common occurrence in white infants. The designation "megaloblastic anemia" is suggested for this condition because macrocytosis, as determined by mean corpuscular constants, is an inadequate criterion in the hematologic diagnosis of this anemia, while megaloblastic transformation of the bone marrow is a constant occurrence. The characteristics of the circulating blood are a normochromic and usually macrocytic anemia, leukopenia, neutropenia and thrombopenia, and they have a striking similarity to those of classic Addisonian pernicious anemia. These characteristics are not constant in the circulating blood. Study of the bone marrow by means of smear culture is a reliable method of diagnosis. The anemia, leukopenia and thrombopenia are interpreted as the results of a disturbance of regeneration affecting the marrow cells and identical in its mechanism with the disturbance of marrow function in pernicious anemia. Folic acid is identical with or contains a hemopoietic factor which has a specific effect on megaloblastic anemia.—*J.A.M.A.*

Penicillin treatment of oral inflammations in childhood.—M. B. Marks, *J. Pediat.* 28: 582 (June) 1945.

The usual treatment of thrush, Plaut-Vincent's infection and herpetic stomatitis with gentian violet medicinal, irrigation with boric acid and peroxide, and with

sodium perborate and glycerite of boroglycerin suffices in most cases. However, for severe infections the treatment is long and tedious and is trying both to the pediatrician and to the patient. In these cases, the use of penicillin, both topically and by injection, is invaluable because of the rapidity with which it brings about an amelioration of symptoms. Ten thousand to 20,000 units of penicillin is injected intramuscularly every three hours, depending on the age of the child and the severity of the infection. For small infants a total dose of 40,000 to 50,000 units is all that is necessary. For older children the total dose is usually, 100,000 units. A greater amount may be employed when it is thought necessary, but in the author's experience the total stated seems to be adequate.

For young infants or for older children when it is not desirable to carry out the injection technic penicillin may be used topically in a concentration of 250 units per cubic centimeter. In this method, the solution is applied with swabs and loose cotton packing to the affected gums and buccal surfaces. Although the results are a little lower than with the intramuscular route, they are as good, and certainly the method more effective than the former procedures using dyes, oxidizing reagents and mild and strong antiseptics.

For particularly severe infections a combination of both the topical and the injection technic may be carried out. The intramuscular route should be preferred in the administration of penicillin. It is seldom that more than four or five deep injections are required, and these can be given within a period of twelve to fifteen hours.

From an experience in treating a number of infants and children with the oral manifestations of thrush, Plaut-Vincent's infection and herpetic stomatitis, Marks is convinced that penicillin now supersedes all hitherto employed remedies as being the most reliable and effective.—A. J. D. C.

Postural factors in apical tuberculosis.—Tuberculosis in the adult shows a remarkable preference for the apical regions of the lungs. After the disease has become advanced in one apex it often involves the opposite apex months or years before lesions can be demonstrated in the lower two-thirds of the lungs. The basal regions may escape involvement for a long time even though the patient constantly has a positive sputum and the entire lung is maximally exposed to infection. This contrast between the susceptibility of the apical zone and the immunity of the rest of the lung is peculiar to tuberculosis.

By combining facts from anatomy, pathology and clinical medicine with data on the pressure in the pulmonary artery of human subjects, a theory of pathogenesis of apical tuberculosis has been developed which appears more convincing than some of those mentioned. This explanation of the disease also provides as a corollary, a physiologic rather than an empirical basis for the therapy which even in an era of pulmonary

surgery and of antibiotics is still the most widely and effectively used—bed rest in the open air.

When an adult of medium height is standing or sitting, the weight of the column of blood rising from the right ventricle to the apexes of the lungs is greater than the mean pressure in the pulmonary artery; in a tall, narrow chested person the column of blood exerts a pressure greater even than the systolic pressure in the right ventricle. As the veins collapse easily, they cannot siphon blood over the apical capillaries and back to the left auricle. Thus one of the sequels of man's erect posture is to reduce the blood flow to the upper parts of the lungs to nil if the cardiac output and the pulmonary arterial pressure are at their basal levels, unless the subject lies down.

When the apical regions are thus deprived of inflow of blood of venous character but are being ventilated, they will contain alveolar air richer in oxygen and poorer in carbon dioxide than the rest of the lungs. This will favor the growth of tubercle bacilli. In the bloodless zone toxins will accumulate without possibility of dilution or removal in the lymph, as tissue fluid cannot form. Few phagocytes or none will enter the region until the person lies down and blood flow is restored. Silica dust coming into this part of the lung will accumulate because of the decreased lymph flow. All these factors favour the development of apical tuberculosis even in persons whose immunity is so high that the basal parts of the lungs resist infection though secretions coming from the apexes contain innumerable bacilli.

Many well known facts about tuberculosis fit into this theory of susceptibility due to postural ischemia. A predilection for tall, narrow chested people could be due to the greater extent of the ischemic zone. The higher incidence of initial lesions of the right apex could be due to the fact that the left apex is supplied by arteries which deviate little from the direction of outflow from the pulmonary conus, while the right is supplied by a longer vessel which makes two acute angles passing around and behind the aorta. The loss of kinetic energy due to reversal of direction of flow must lower mean pressure on the right and result in a deeper ischemic zone, thus favouring progressive infection. In mitral stenosis the pulmonary arterial pressure is three to five times normal, and the apical region must be about as well perfused as the base when the patient is erect. Apical tuberculosis is rare in mitral stenosis in spite of the asthenia and the poor environments common to patients with either disease. In pulmonary stenosis, where flow in the erect posture must be poor in most the upper half of the chest, active tuberculosis is unusually frequent in adults.

This theory of the pathogenesis of apical tuberculosis accounts for its frequency in those young adults, studious or playful or both, who get little rest and the continuously erect fourteen to twenty hours

ily. It also explains why bed rest alone effective in so many of these cases but of much less value in those with pulmonary basal lesions or tuberculosis of the kidney, pyelitis or skin. When patients are propped up in bed to read, ischemia of the plex is not abolished. The effectiveness of bed rest is thus greatly increased by outdoor exposure during the day, as the breezes and right light discourage reading and promote appetite and sleep by stimulating the skin and tiring the eyes. Where patients are

outdoors during the day they spend the maximal number of hours quiet and completely recumbent. However, it seems not impossible that brief intervals out of bed for meals and to facilitate nursing would not unfavourably affect the "cure" and make it less demoralizing and costly.

In any event the new understanding of apical tuberculosis will make therapy of such a simple nature as complete recumbency easier for patients to accept.—J. A. M. A.

SURGERY

Treatment of peripheral nerve injuries.—A. M. Pruce (*Southern Medical Journal*, 39:289, April 1946) describes the physical therapy employed in peripheral nerve injuries as an adjunct to the necessary surgical treatment in Army casualties. Physical therapy is employed both preoperatively and postoperatively. Before operation treatment is necessary for mobilization of stiffened joints, for loosening of adherent scars that interfere with joint and muscle function, and for improving circulation in edematous, thickened and infected skin. For mobilization of stiffened joints, the paraffin bath is of great value; it has a definite sedative effect, as well as stimulating local circulation and relaxing muscles in spasm. The stiffened joints are immersed in a paraffin bath (115° to 130°F) and withdrawn at least 5 times, with a sufficient interval between immersions to allow the paraffin to solidify. The paraffin is removed with "mobilizing massage" and each joint is carried through its maximum range of motion passively, and then by active exercise. In the treatment of skin infection and inadequate circulation, the extremity involved, which in case of fracture is supported by a wire ladder splint, is immersed in a whirlpool bath at temperatures varying from 98° to 105°F for fifteen to twenty minutes. Ultraviolet irradiation treatment is then given in graduated erythema doses. After operation, measures to combat joint stiffness are continued. When the elbow or knee joint must be fixed in extreme flexion after operation of nerve repair, the extremity is fixed in plaster for four weeks, then the cast is bivalved, and measures for the gradual extension of the joint are begun. During the postoperative period before regeneration of the nerve has occurred, the chief object of physical therapy is to maintain supple joints with a maximum range of motion. During this period, the patients are grouped according to the nerves involved, and are instructed in carrying out "self-administered" passive movements under supervision. When there is the first sign of voluntary contraction, the first sign of voluntary contraction, the graduated active exercise and re-education for function are begun. It is generally accepted that repair of an injured peripheral nerve takes place at a rate of approximately $\frac{1}{4}$ inch a month. At the time of reinnervation as calculated on this basis, galvanic stimulation is also of value as an adjunct

to active movement and re-education.—*Medical Times*.

Trauma and tuberculosis.—Traumatic injury is able only to activate a tuberculous process in a tissue which beforehand has a certain disposition for tuberculosis. In some cases, presumably, the trauma plays an essential role in the appearance of a tuberculous focus in such a tissue; in other cases it probably acts merely as the drop that makes the cup overflow. So, the coincidence of trauma and tubercle is by no means sufficient for the production of a tuberculous focus. Other conditions, which might be designated as favorable local immunobiological conditions, have to be present if the trauma is to exert its effect in this respect. It is most likely that traumatic injury really may play an essential part in the production of the tuberculous lesion.

The tuberculosis process is always localized to the same regions as spontaneous tuberculosis. If, for instance, the traumatic injury hits a knee joint, the result will never be a skin tuberculosis in the knee regions but always a tuberculous process in the knee joint itself, in keeping with the fact that tuberculosis of the skin of the extremities is a very rare lesion, whereas tuberculosis of the knee joint is relatively frequent.—Meyer, J.: Trauma and tuberculosis. *Acta path. et microbiol. scandinav.* 21:571-586, April 1944.—*Na. Med. Bull.*

Induced sensitivity from topical use of sulfonamides and penicillin.—In the author's opinion there is no question of a doubt that these reactions are increasing, and if one could question the millions of people who have used the sulfonamides locally, through either lay or professional advice, examples of induced sensitivity would be found so frequently that the figures would appear ridiculously small, and future deaths from severe general septic infections correspondingly great because of inability to use these life saving drugs owing to sensitivity induced years before. There is no logic in such a procedure, and it is our duty as dermatologists to hammer the above mentioned facts into the nondermatologic mind. These facts can be summed up as follows:

1. Avoid the local use of sulfonamides in trifling cutaneous lesions, reserving them for serious coecal skin infections.

2. Limit their use for a period no longer than 7 days.

3. During their application instruct the patient to avoid solar and quartz lamp exposures.

4. Despite the fact that patch testing is recommended and is frequently used to determine sensitivity to the sulfonamides, it must be kept in mind that a patch test can occasionally cause a severe flare-up far worse than the original dermatitis.

Allergic manifestations following the use of penicillin up to date have been both mild and rare. In estimating their number and characteristics, one should be careful not to include the recurrent papulovesicular eruptions appearing after the administration of penicillin in patients with an antecedent chronic dermatophytosis of the feet, either with or without a vesicular dermatophytide of the hands. These eruptions . . . occur within 24 hours and are not allergic manifestations, but may be due to some form of immunologic disturbance, possibly induced by the sudden and increased liberation of toxins from foci of the antecedent dermatologic condition—Becher, P. E.: Induced sensitivity from topical use of sulfonamides and penicillin. *Pennsylvania M. J.* 49: 417-420, January 1946.—*Na. Med. Bull.*

Notes on volatile anesthetics.—Ether is one of the safest of volatile general anesthetics. On exposure to light and air, however, it develops peroxides which are explosive. Furthermore, it is highly inflammable. Ether has many advantages and by the open method of administration remains one of the safest general anesthetics and can be given with very expert assistance. It has long been a standby of the country doctor and in war it has proved its value in the field.

Both of these drugs first saw their use as anesthetics in America. Chloroform was first used in Europe by Sir James Simpson. It is much more rapid in its action than ether. It is more cardiotoxic and through stimulation of the vagus slows the heart yet stimulates the cardiac acceleration. These simultaneous effects tend to produce fibrillation involving both auricles and ventricles and with the cardiotoxic effects on the muscle may cause sudden death. The mortality is apparently four times that of ether. The figures usually cited are 1 death in 10,000 cases from ether, and 1 in 2,500 from chloroform.

Ethylene was developed in 1922 by Luckhardt in the United States. The gas must be administered with oxygen. Unfortunately the mixture is very explosive and this has contributed to the unpopularity of this anesthetic.

Divinyl oxide was produced by Leake at the University of California from a combination of ethylene and ether. It is used in lower dosage than ether being considerably more profound in its effects. It produces a rapid anesthesia but causes liver damage if used except for very short operative procedures.

Cyclopropane is a hydrocarbon which produces anesthesia with good relaxation and sufficient oxygen can be given with it to prevent anoxia. It has recently been included in the USP XII.—*Na. Med. Bull.*

Surgical gastro-intestinal tuberculosis in cases of pulmonary tuberculosis.—Tuberculosis of the gastro-intestinal tract is a common accompaniment of pulmonary tuberculosis. There is a preponderance of tuberculous lesions in the ileo-caecocolon, and the next most common site in the anorectum. Tuberculous ulcers of the tongue, mucous membrane of the mouth and the fauces are very rare. The ulcers when they do occur are oral in outline, have sinuous edges, a pale watery looking base and an absence of induration characteristic of tuberculous ulcers elsewhere. The tuberculous ulcers of the tongue choose the tip of the tongue. Tuberculous lesions of the oesophagus, which are very rare, usually occur as a spread from the larynx, pharynx, tracheobronchial glands, mediastinum or a paravertebral abscess.

The lesion in the bowel is ulcerative, hyperplastic, or fibrous. The lesion commences primarily in the lymph follicles of the dependent loop of the bowel, fibrous tissue formation is marked, caseation occurs infrequently and ulceration occurs late. The edges of the ulcers are ragged, irregular and undermined, and the base is covered with small grey tubercles.

The symptoms are usually vague, and inconstant. The tuberculoma either presents itself as a lump with very few symptoms, or as a low grade obstruction with constipation or alternate attacks of diarrhea and constipation. The ulcerative and miliary types of intestinal tuberculosis are not amenable to surgical treatment. Obstructive lesions, perforations and localised tuberculomas causing symptoms should be treated surgically and the localised tuberculomas do well with resections of the affected bowel.

Except for the extensive forms of tuberculous proctitis involving the entire wall of the rectum and usually associated with ulcerative lesions in the bowel elsewhere which necessitate colostomy, anorectal tuberculous lesions lend themselves to very satisfactory and pleasing results with radical surgery. There is usually a long history with insidious onset, and the lesion is more often than not peculiarly painless.

Tuberculous peritonitis may be acute or chronic, which may be aseptic, adhesive or ulcerative. The treatment of acute is medical. In chronic cases colostomy and the removal of an offending focus, if possible will often clear up the condition.—*Clinical proceedings of the Journal of Cape Town Postgraduate Medical Association.*

Treatment of Phlebitis.—To a questioner the following answer is given in the *B.M.J.* Aug. 17, 1946. The limb is enclosed in an adhesive bandage to well above the upper limit of the phlebitis. Moderate activity

allowed, and the supporting bandage is changed at intervals of about a week, when all pain, tenderness, and redness have gone the temporary use of a crepe bandage is advisable before allowing unrestricted use of a limb. Ultimately treatment directed to the varicose veins themselves may be necessary—either injections or operation; but injections should never be carried out until at least six months have elapsed after an attack of phlebitis. This supporting treatment during phlebitis lessens pains, diminishes oedema, and therefore favours repair processes, and the moderate use of the limb improves the venous circulation and so lessens the risk of extension of thrombosis. Ambulatory treatment is not advisable when there is thrombosis of massive type in a completely incompetent internal saphenous vein, and ligation at the saphenous opening may be preferable in these. Neither does the treatment apply to those cases of infection or bacterial thrombo-phlebitis associated with high fever.

Phlebitis in superficial veins in the lower limbs is almost always secondary to incompetence and varicosity. The thrombosis occurs at the site of thinning and impaired nutrition of the vein wall, and results from stagnation. At the local site the initial clot is adherent and irregular. Focal infection may play a part, but if it were an important part one would expect phlebitis to be much commoner in healthy, competent veins and in other situations. The phlebitis associated with typhoid, the puerperium, and operation is usually a deep thrombosis. Trauma or focal infection is more likely to lead to thrombosis in a varicose vein than in a normal use.—*B.M.J.*

Orchiectomy in the treatment of carcinoma of the prostate.—D. W. Chase, K. L. Burt and Elmer Hees (*American Jour. of Surg.* 71: 522, April 1946) consider that in the very early case of carcinoma of the prostate, total perineal prostatectomy is indicated, but they state that they have not seen a case at their clinic in which this operation was indicated. They report 50 cases of carcinoma of the prostate treated in 1941 and 1942 by orchiectomy, with transurethral resection when necessary to relieve obstruction. In some cases, postoperative estrogen therapy was also given. In a follow up of these patients in 1945, it was found that 4 had died of "irrelevant causes." Of the 46 living patients, only 6 reported that they felt no benefit from the operation; 20 felt no benefit although improved, had some leg pain or back pain; 26 had returned to full employment. Thirty-three of the patients reported a gain in weight, and only 3 had lost weight, the remaining 10 showing no weight change. Four illustrative cases are reported in which especially good results have been obtained by orchiectomy, all of these 4 patients having been able to return to work. On the basis of these findings, the authors conclude that when cancer of the prostate is too far advanced for the radical operation orchiectomy is the treat-

ment of choice; this may be combined with transurethral resection and/or estrogen therapy. While the authors do not claim "absolute cure" in any case, they are convinced that this procedure gives the best results.—*Medical Times.*

Treatment of thrombophlebitis.—Walter C. Freese, Baldwin, N. Y.

The term thrombophlebitis implies an inflammation of the vein wall or of a venous segment, usually aseptic in type.

Bauer has demonstrated by the use of phlebograms in a study of nearly 600 patients that the process begins with a thrombus, arising for some as yet unknown reason in a muscle vein and projecting into the lumen of one of the large venous trunks of the lower part of the leg. Here, it is the starting point of a deposition thrombus, which continues growing upward in the direction of the blood stream.

The thrombus propagates until the lumen of the affected vessel is completely filled and extends upward into the femoral vein in the majority of the cases. The thrombus lies free in the vein lumen but does not completely occlude it and is attached only, at one point where it projects from the vein of origin.

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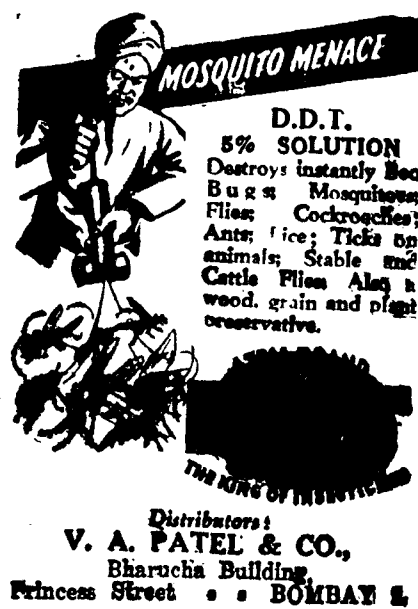
There are three main objectives in the treatment of acute deep venous thrombosis:

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- (2) Reduction of morbidity and time of hospitalization.
- (3) Prevention of postphlebotic late sequelae, edema and ulcer.

To achieve these objectives, early diagnosis and institution of proper treatment is essential.

Early diagnosis depends on certain simple signs and symptoms. Chest pain, with or without cough or uncomfortable deep breathing, is the first sign in about 35 to 40 per cent of the cases. Chest pain and cough with expectoration of blood-tinged sputum is pathognomonic. X-ray of the chest gives confirmatory evidence.

Routine daily or bidaily examinations of the legs, especially of the feet and lower legs, should be done for the first signs are manifested here in about 60 per cent of the cases. Pain, swelling, tenderness and dilated superficial veins are the first signs. Homan's sign, if present, clinches the diagnosis. This sign is elicited by gentle but forceful dorsiflexion of the foot with the leg extended. If there is discomfort in the calf muscles or popliteal space during this manipulation, thrombosis of the deep veins is present. A slight rise in temperature, pulse



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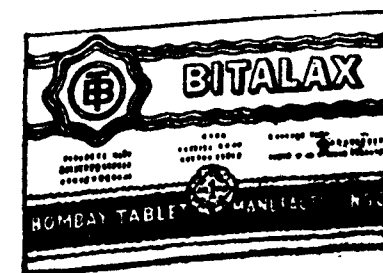
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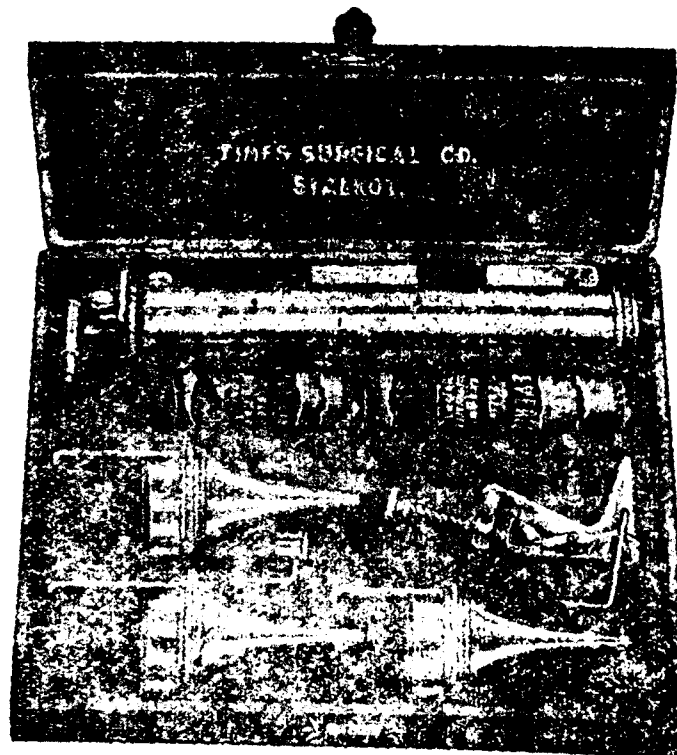
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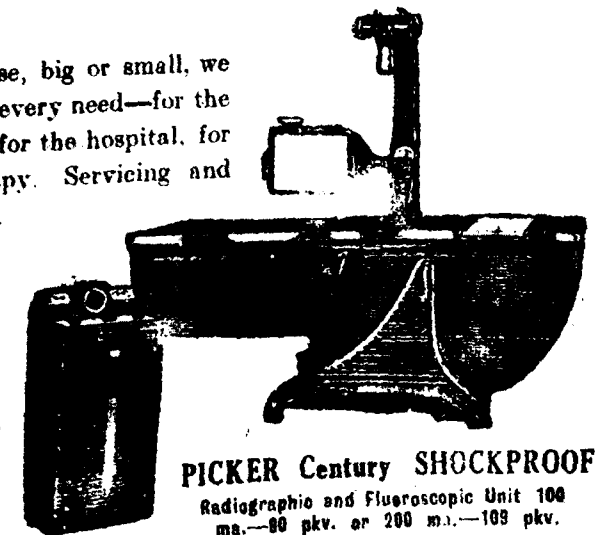
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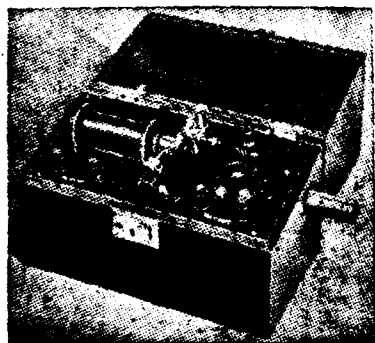
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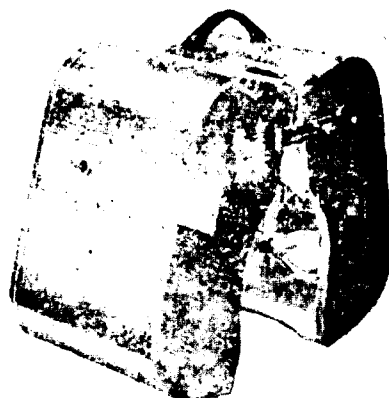
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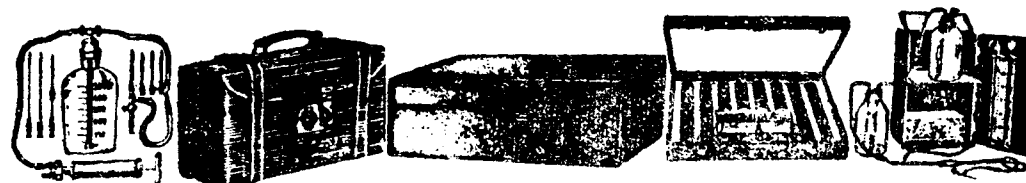
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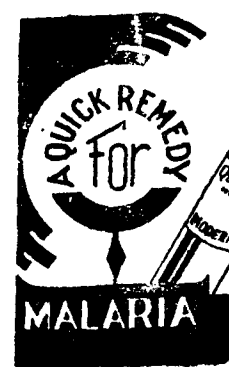
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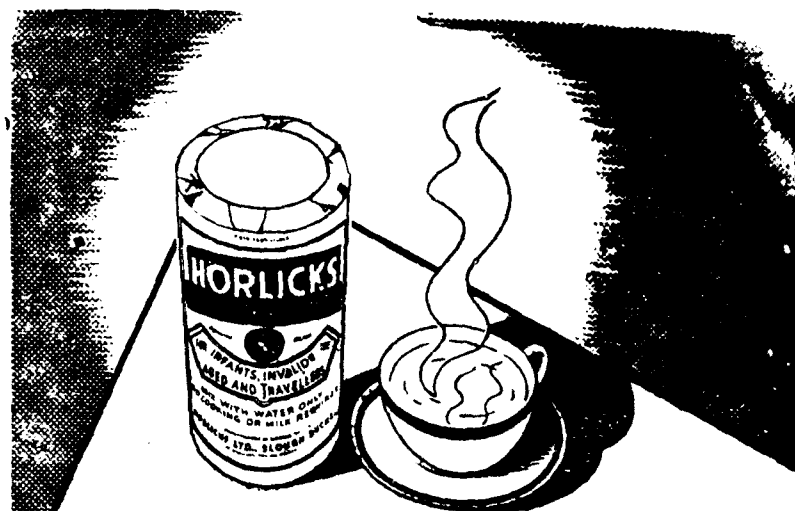
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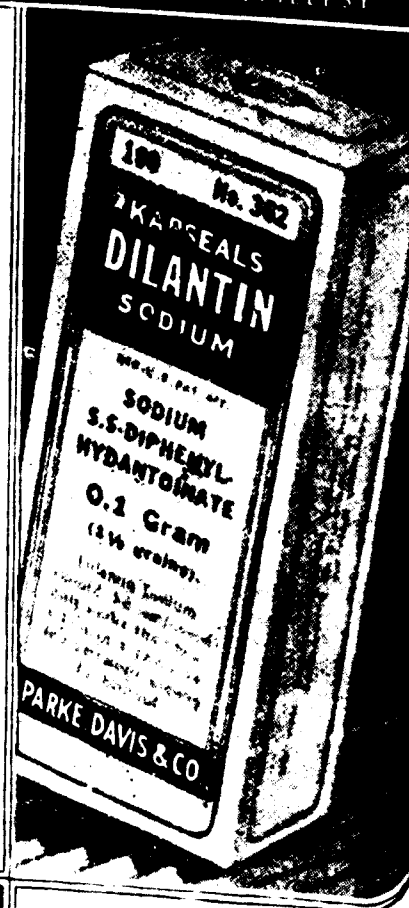
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