

MEDICO-SURGICAL SUGGESTIONS

Vol. VI.

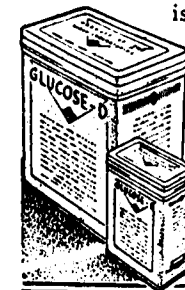
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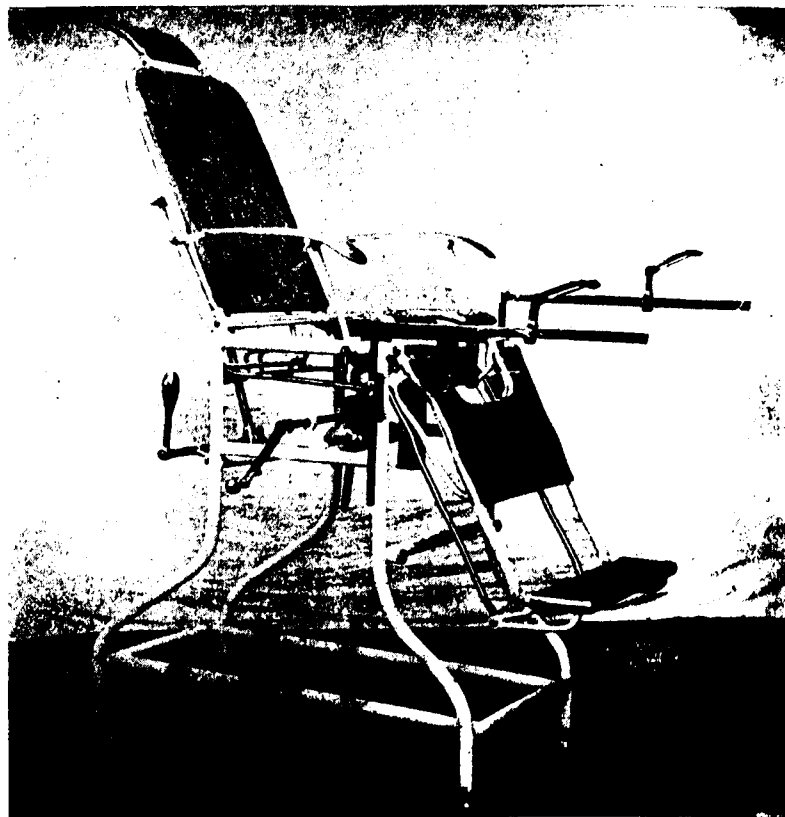


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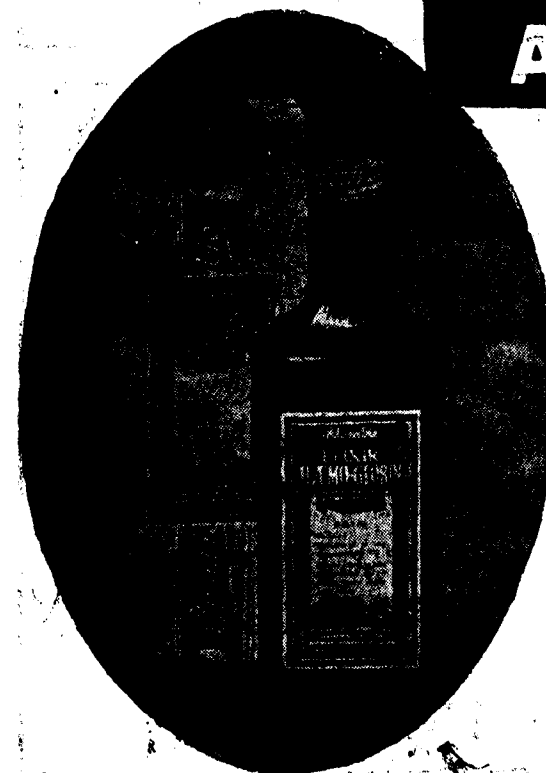
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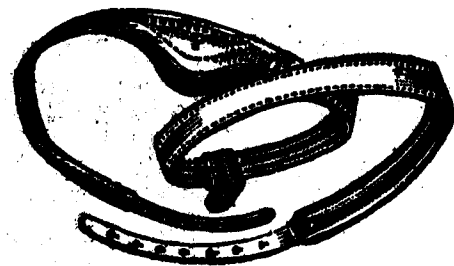
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NO. 6

Original Article VITAMINOLOGY.

BY DR. N. RAMA RAO, L.M.P.,
Gollapalli, Kistna District.

Among the several branches of the medical science that are making extremely rapid advance year after year, the subject of vitamins occupies no less importance in the medical field than any one of the rest. The therapeutic value of the vitamins though definite as per our knowledge, seem to be rather difficult for application in practical life, since they are too many and too complicated and the production of vitamin containing proprietary goods seems to be endless so much so that it is no wonder that a physician is often perplexed and ever worried while prescribing a suitable one for his patient out of so many products. One may even have one's own doubt whether the so called vitamin food actually contains the same vitamin or vitamins or not, and even if it contains, in the same quantities mentioned. Any how let us know some thing about these vitamins.

Vitamins are factors occurring in food stuffs in incalculably minute amounts which are quite essential for the normal and healthy growth and development of the human organism, without which the ordinary food materials are quite inert. From biological determinations their value has been definitely proved. When they were discovered some 25 years ago, their stability was much doubted, as well as the possibility of their isolation and standardisation. But as days went on, with untiring and persistent researches, experts in that field have been able to isolate them, and we have now on the market several preparations that are claimed to be quite stable and intended both for oral and parenteral administration. From the progress so far made we are led to believe the probability of discovering a greater number of these vitamins in the near future than now existing, for instance I was taught in my student days about

only three vitamins A, B, & C., and now they increased to nine in number and in course of time all the alphabets from A to Z may be exhausted.

Vitamins are derived directly from the vegetables and indirectly from the animals, which live upon those fresh vegetables. The conditions of storage of these vegetables have a great influence on their vitamin value. The cooked foods either fresh or tinned are very poor in their vitamin value.

The value of these vitamins are two fold. They are firstly essential for healthy maintenance of the organism and secondly their deficiency in normal diet leads to a state of avitaminosis (under-nourishment) which is manifested by certain signs and symptoms. Even as early as 1878 one well known authority has asserted with regard to a particular disease like this "The essential factor it has been proved over and over again, is the absence of certain elements in the food".

The detection of these elements and their values clearly based upon several experiments performed on animals and certain diseased conditions have been noticed by depriving these animals from certain varieties of food stuffs. Thus their findings have paved a working hypothesis for human beings as well. All the vitamins when deficient are capable of producing a state of subnormal health manifested by weakened powers of resistance and therefore susceptibility to various diseased conditions, besides being able to produce individually separate syndromes of typical deficiency disease like beri beri, rickets etc.

Classification of vitamins:—These are mainly classified under two heads, namely, fat soluble vitamins and water soluble vitamins. To each one of these factors is given a signal according to the alphabetical order. Vitamins A, D and E belong to the fat soluble types. While vitamins of the B complex group and vitamin C are water soluble. B complex group of vitamin consists of B₁, B₂, B₃, B₄ & B₅, of which knowledge regarding only three, that is, vitamins B₃, B₄ & B₅, are still inadequate. Vitamin B₂, is also known as vitamin G. Though the knowledge about these vitamins deals with several aspects like their chemistry, solubility, colour reactions, preservations, stability etc., besides their sources, therapeutic values etc. I should like to say a few things regarding the essentials which a general practitioner should know.

Vitamin A:—This is also known as anti-infective and anti-xerophthalmic factor, from which the principal uses of this vitamin are self explanatory. Besides, deficiency of this factor results in retardation of growth in children and failure to maintain normal resistance to infection both in young and adult life. It may be of interest

to note that the stunted growth resulting from this cause in young people, cannot however be rectified by administration of this factor even in abnormal quantities. This has got a special affinity to the structures of the eye and epithelial tissues so that affection of the eye is manifested by one or more of the following:—Xerosis conjunctiva, xerosis cornea, diminished lacrymal secretion, keratomalacia, hemeralopia (night blindness) the last of which being associated along with the others. There is enough evidence of this vitamin A deficiency resulting in a break down of the functional integrity of the epithelial structures and thereby a lessened resistance of these structures to bacterial infections. Several times it has been proved that this factor plays an important role in preventing the development of urinary calculi. By virtue of its affinity for epithelial lined mucous surfaces as mentioned already, this vitamin A when deficient, is able to affect the respiratory, urinary, and reproductive systems, conjunctiva, ear, ducts and glands etc., and thus predispose a person to an infective process, and hence we get clinically in addition to diseases above mentioned, other manifestations like adenoids, sinusitis, otitis media, gastroduodenal ulcers, goitre, gynaecological ailments and respiratory diseases like bronchitis and pneumonia. Xerophthalmia produced experimentally on rats is first indicated by oedema of the eye lids and increased conjunctival secretion. Ulcers formed on the cornea quickly disappeared on administration of fats, egg yolk, cod liver oil, or fats from the intercellular fats of the glandular organs like liver, kidney testes and green leaves of plants. It appears this disease is being treated in Japan by chicken liver, in India by goats liver and in Denmark by cream and fresh milk. This vitamin factor exists in raw milk, animal fat and egg yolk, and its sources are from green leaves and shoots of plants, cabbages and to a less extent in germinated pulses or cereals. Only raw whole milk is good as it is destroyed by skimming, heating, boiling, pasturizing, tinning or canning or drying or curdling or when subjected to any process before consumption. It is practically absent in all fruits (except banana, orange, papaya and mangoes which contain little amounts) and beet and tomatoes are very rich in it. It is absent in vegetable oils (except cocoanut oil) margarin root and tubers, vegetable seeds (except soya beans, linseed, maize, millet) white flour, polished rice, cane sugar, cocogem and proprietary foods. The vitamin content of raw milk depends solely on the green fodder on which the animals are fed. Hence it is quite possible for the seasonal variations and certain conditions of life as well as climate do have an influence over the vitamin content of the animal products. For instance during a particular season the animals suffer from diseases when naturally the vitamin content may be below par and animals living in green fields well exposed to sun shine are very good sources of this factor. The liver cells of the cod and the Halibut are the

richest sources of this vitamin. Certain characteristic features about this vitamin A are, it is soluble in ether, alcohol, benzene and highly soluble in carbon disulphide and carbon tetrachloride. 2. It is easily oxidised and therefore destroyed by light and air. It is also destroyed by heat at 100 degrees C, if kept for four hours. It is said to possess comparatively heat resisting capacity when existing in vegetables. 3. It is resistant to alkalies. 4. Freezing does not seem to destroy it.

Few case reports. 1. A youngman aged 18 years was brought to me some two years back with the complaint of night blindness. Telling the parents of the inefficiency of medical treatment, I advised them to give the boy daily one or two eggs and plenty of fresh milk according to his capacity to digest and to try this for some months. After 6 or 8 months the father came to me and said the condition of the boy has much improved and he was able to see during nights. This case was some time ago reported in one of our District Medical Association meetings.

2. A boy aged 15 years subject of an old healed bony tuberculosis which resulted in a hunch back and pigeon chest was under my treatment for pyrexia of uncertain origin which continued for about a week. During the latter part of the fever he developed a vague agonising neuralgic pain extending around and down the hip and sometimes to the whole and sometimes to a part of the thigh and also changing sides. At other times occasionally the pain used to involve both sides. I was not able to make out the cause though it was disturbing the patient's sleep and causing much restlessness and exhaustion. I was sure the fever had nothing to do with the pain, several sedatives were tried and of no use and tentatively cod liver oil was ordered to be massaged twice daily over the painful area and this gradually abated the suffering and completely relieved rather surprisingly.

3. A female of multipara during her 3rd or 4th pregnancy consulted me with a complaint saying that it was a habit with her during the later part of every pregnancy to feel bodily heat throughout day and night, great uneasiness, dragging sensation in the legs and arms and vague pains here and there all over the body and invariably every confinement is attended by some fever and foul discharge. I attributed her ailments to lack of vitamin and advised her to stop mill rice which the whole family is accustomed to, and take nothing but pounded rice during her life and to consume Radio-Haemoglobin (Bengal Immunity) and Haliverol capsules. She implicitly followed my instructions and I had opportunities of watching her during the subsequent three or four pregnancies and all the above mentioned complaints disappeared and she had a feeling of well being during pregnancies and the puerperium was quite normal.

Vitamin B Complex:—Owing to the complex nature of the vitamin B, it is rather difficult to actually define and classify the changes which it can produce by its deficiency in the food. Most of the symptoms produced are those involving the nervous system the central as well as peripheral. The lower extremities are involved more than the upper and the sensory as well as the motor functions are found impaired. The phenomenon due to the deficiency of a particular vitamin factor are attributable to beri beri and those of another factor to pellagra and hence these two are named anti-neuritic or anti-beri-beric factor and anti-pellagra factor and are known as B1 and B2 respectively. The discovery of this vitamin dates back to about twenty years ago when the incidence of beri beric symptoms in man was found just similar to the condition produced experimentally on fowls known as polyneuritis gallinarum. In children the lack of this vitamin results in irritability, anorexia and failure to put on weight and consequent retardation in growth and rigidity. In adults also the same symptoms are noted namely cessation of growth, progressive weakness, loss of appetite, lack of tone with loss of power of muscles co-ordination and diminished normal rhythmic contraction of the stomach. Besides there is also degeneration of the peripheral nerves. Post mortem findings reveal a dilated stomach and atrophied condition of the intestines and lymphoid tissue. Some authorities have found the occurrence of glossitis with atrophy of the lingual papillae attributable to this deficiency. This particular condition they believe seems to constitute a conspicuous manifestation of a number of diseases such as pernicious anaemia, achlorhydria and consequent anaemia, anaemia of pregnancy, and several intestinal and gastric disorders. Another author is of opinion that spure also may be added in the above group. Experiments on rat have definitely proved that when the rats have been deprived of this vitamin B, their tongues have changed gradually from the normal stippled uneven appearance to a glossy smooth and shining appearance due to atrophy of papillae as well as areas of denudation and ulceration here and there. Cardiac symptoms are also traceable to this vitamin deficiency as bradycardia and heart block are experimentally proved to occur in pigeons and rats. Further it has been proved that lack of vitamin B1 also produces degenerative changes in thymus, thyroid, testes, spleen, pancreas, heart, liver and kidneys as well as stomach and intestines, while the adrenals undergo hypertrophy. It also makes animals and men susceptible to pathogenic infections. The disease beri beri is not limited to tropics as it only occurs in rice eating people like those of Japan, Philippines and East Indies. As early as 1900 it was shown that the disease is not limited to rice eaters only and an outbreak of beri beri was reported in Norwegian sailors who were eating a diet rich in meat.

Sources:—Seed germs, bran of wheat, rice, peas, beans, nuts, eggs, yeast, and glandular organs (like liver and kidney). It is present in lesser amounts in fruits and vegetables like banana, orange, lemon, grapes, apple, prunes and tomatoes. In the pulses it is present throughout the seeds and in the cereals it exists only in the germ or embryo of the husk. Hence germinating pulses are rich in it. Ground nuts, almonds and soya beans are also good sources. In little amounts it is present in vegetables such as potatoes, cabbage, lettuce. It is absent in milled or polished rice, white flour and sago, butter and cod liver oil. Its characteristic features:—It is soluble in water and alcohol and not in ether and other fat solvents. Its water solubility shows the importance and value of water in which the food is boiled. It is comparatively resistant to heat, this is to say at 100 degrees C. it slowly begins to be destroyed and rapidly at still higher temperatures, so much so that ordinary cooking has no effect over it. Alkalies destroy it. When foods are boiled in an alkaline medium. In Vitamin B deficiency it is worth remembering that gastro-intestinal disorders are more resistant to treatment than the nervous phenomena, and also that, as this factor is not stored in the body like vitamin A, it is utilised then and there only, the body should be supplied with it daily in our foods. Out of the vitamin B complex, it is only B1, that is responsible for the beri beri symptoms as already mentioned and much of what has been said above holds good to it, while vitamin B2 is responsible for pellagra.

Vitamin B2:—Or the anti pellagra factor or pellagra preventive factor. This seems to be connected with maize consuming areas of the world. It is at present still undecided how far this can be regarded as the sole etiological factor for this disease because some cases on record are cured by sodium thiosulphate. In a similar way also the responsibility of vitamin B1 over beri beri since out of the etiological factors for this latter disease, germ theory is of late on that is forth coming. Vitamin B2 is found most richly in yeast, fresh liver, white of egg and seems to be more stable than B1. However that it is an important dietary unit for growth of normal health cannot be doubted. Lack of this vitamin produce dermatitis and other skin lesions and of late one author is inclined to believe that it has some curative value even in case of leucoderma. Pellagra is rather rare in our part.

Vitamin B3, B4, B5:—These are present in yeast and wheat and as already mentioned the knowledge about these are still vague except that they are essential for normal nutrition and weight maintenance, while B4 is concerned with the nutrition of rats.

Vitamin C:—The anti scorbutic factor. Experimental data definitely show that the immense value of fresh fruit juice and vegetables in preventing the onset of scurvy has been correlated with the presence in these substances of Vitamin C. Despite several efforts, it was

very difficult to be isolated in a state of chemical purity for over a long time. But of late it was possible by appropriate chemical treatment to effect considerable concentration in the anti-scorbutic principle present in lemon juice and other materials. It is also held that it is readily destroyed in alkaline media and by heat, if the reaction is not acid, while it is relatively stable in acid media, it appears that one great Hungarian scientist had detected that when the cut surfaces of the adrenal glands are treated with silver nitrate, a reduction to metallic silver is noticeable rapidly occurring in the cortical areas, and that such reduction was responsible to a crystalline substance which he could isolate from those glands. This crystalline substance seemed to belong to the class of hexuronic acid. Further investigation showed that the same substance possessed identical composition as that of the isolated material from fruit juice. But it was not then tested for any antiscorbutic properties. Since this happened 4 years prior to detection of the vitamin C. Now it is definitely held by certain authorities that the chemical composition of vitamin C. is that of a molecule of water that is $C_6H_8O_6$. The compound was then named as ascorbic acid and now Cevitaminic acid. The disease scurvy, a scourge which from the earliest records has played havoc with soldiers in camp, sailors, prisoners and explorers etc. was shown as early as 1734 by one eminent author to be due solely to abstinence from fresh vegetable foods and greens which is alone the primary cause of the disease. Dr. James Lind published a treatise on scurvy even in 1756 consisting of his valuable experience and observations among prisoners, armies and sailors. In it is stated that out of 12 patients of scurvy taken by him on board a ship two were receiving two oranges and one lemon daily and these two manifested marked and most rapid visible improvement and one of the two got fit for duty even by the end of one week. Our modern knowledge dates from 1912 about the cause of this disease which it was experimented and found that the guinea pigs speedily developed this disease when fed solely on cereals or bread.

Sources of Vitamin C:—The vitamin C is present in lemons, oranges, cabbages, onion and tomatoes, all of which contain an equally good proportion, while tamarind and grapes contain little amounts. It is absent in roots and tubers, milk, animal and vegetable fat, tinned meat, cereals and pulses and in yeast. Whole milk as well as fresh meat are said to contain little amount, while it is lost when the former is pasturised or sterilised. Fresh vegetables when boiled or dried lose this anti scorbutic factor while pulses acquired this principle when allowed to germinate.

Its characters:—It is soluble in water and alcohol. It is comparatively resistant to quick heat at 100 degrees C. but is destroyed

by prolonged heat at low temperatures. It is destroyed in an alkaline medium. Hence vegetables cooked with soda prove inefficacious.

Clinical features:—Its deficiency is associated, besides scurvy with also vesical irritability and anuresis of children. It is also claimed that it is one of the factors responsible for the maturation of the red cell and the capillary fragility is one of the well recognised symptoms of its deficiency. It is also said to be essential for the existence of living protoplasm probably as an integral part of an oxidation reduction system. Experimental data show that the experimented animals developed besides losing weight, pains in knee joints and gums. They lay down placing their faces sideways. Internal haemorrhages also occur as well as bleeding from gums which become spongy. Most of the above symptoms have been corroborated by observation on scorbutic human subjects. From clinical experience, this factor is proved to prevent the onset of dental caries and pyorrhoea alveolaris, and has a curative as well as preventive capacity over ulcerative colitis.

Vitamin D:—(Anti ricketic factor). This is being exhaustively studied during past few years. This was originally discovered to be found from the substance of ergosterol by the action of certain light rays in the ultra violet region of the spectrum. Lack of this vitamin it is now proved beyond all doubt, results in rickets. Skeletal defects (osteomalacia) lead to dental decay. Further it is essential for the control of calcium and phosphorous metabolism in the body, which for the normal growth and development of bones are to be kept in certain degree of concentration in a definite proportion between the two. So deficiency of this factor in foods leads to a chain of events in the human organism namely: Insufficient net absorption of calcium and phosphorous by the body. Hypocalcaemia and hypophosphataemia of the blood. Inadequate calcification of bones in the young and demineralization of the bones in the adult. Unlike other vitamin an excess intake results in hypervitaminosis in which the above chain of events is completely reversed as follows. Increased net absorption of calcium and phosphorous in body. Hypercalcaemia and hyper-phosphataemia of the blood. Metastatic deposition of calcium in soft tissues, chiefly kidneys and aorta. Increased excretion of calcium and phosphorous through urine.

The etiology of rickets was for a long time a subject of controversy. There were two schools of thought, one being that the cause lies in the environment of the patient, and the other was that it is solely due to deficiency in food materials. Later on both schools were thought to be correct in as much as it was proved that the vitamin D could be influenced by the ultra violet rays of the sun. The occurrence of rickets is not rare even in breast fed

children it is the mother that ought to have received proper supply of calcium and phosphorous and sufficient amount of vitamin D. The children may also develop spasmophilia and infantile tetany and even infantile convulsions which are now a days attributable to calcium deficiency if they are not due to definite hypothyroidism. The action of this vitamin D as compared to that of parathyroid is explained thus. Vitamin D aids utilization of calcium and phosphorous in food, while the latter hormone raises the blood calcium. Hence the net absorption of calcium and phosphorous is not in any way affected by parathyroid, on the other hand there is loss of calcium to the body owing to urinary excretion.

Sources and incidence of certain clinical features :—The vitamin D is derived from certain foods as milk, eggs, butter etc., wherein the actual content is influenced by certain seasonal variations, that is, it is directly in relation to the food the animals are fed on and the amount of sun shine available, the latter of which has a marked effect over production of this principle as already mentioned. Ultraviolet radiation can also take the place of actual sunshine. In all these instances there is apparently activation by the rays of the ergosterol which is a derivative of cholesterol normally present in the superficial layers of the skin and a subsequent absorption of the activated product. The vitamin can also on the other hand, be supplied in the form of natural foods or of preparations of irradiated ergosterol or irradiated foods. The best medium for the retention of this factor has been found to be cod liver oil or halibut oil. Though we find some drugs in the market containing vitamin D for parenteral use there seems to be evidently certain amount of uncertainty of the efficacy of such drugs when administered through the skin. For instance experiments have shown that cod liver oil by injection did not prove of much value on rats with experimental rickets, some other experiments showed that, while they are useless in oily solutions, their combinations with ethereal solutions are of some value, though by far inferior to oral administration, colloidal solution of ergosterol containing 1 grm. per 100 c.c. upon rats proved that even ten times the dose found to effect a rapid cure when given orally was of little or no value when given subcutaneously. It is also worth remembering that material substances which are by themselves non ricketic can be made to acquire anti ricketic properties when irradiated. This may be well exemplified by the fact that the rats get on well on saw dust exposed to sunshine with proportionately less of vitamin D administration orally. Ultraviolet therapy is now a days taken advantage of and is being utilised to unite fractured bones, heal up chronic and persistent ulcers of the skin etc. The same effect is also observed by utilising natural sun shine in the place of ultra violet rays. One doctor has reported some time ago that several cases of ulcer and wound

of a resistant character successfully treated by him. The whole body is covered up and the part is exposed to sun at about 2 P. M., and the time of exposure was gradually increased from a few minutes to 15 minutes and even to one hour according to the individual idiosyncrasies. This is no doubt cheap enough when compared to such exposures to ultra violet rays artificially. The effective rays in the ultra violet spectrum are those occupying the middle portion while the shorter ones actually are detrimental to the vitamin D production. Herein I should like to make mention of certain vitamins containing products available in the market with their relative vitamin values. They are many more but my acquaintance is with the following only.

1. Avoeum contains vitamin A only.
2. (a) Betaxis
(b) Vibex.
(c) Ryzamin. B.
(d) Marmite.
(e) Bemax. } Contain vitamin B 1, only.
3. (a) Ascorbic acid
(b) Cantan } Contain vitamin C only.
4. (a) Radiostel
(b) Adexolin
(c) Ostelin } Contains vitamin D only.
5. Wheat germ-oil. Contains vitamin E only.
6. (a) Radiostoleum
(b) Vitadin
(c) Vogan
(d) Super D concentrate pearls
(e) Cod and Halibut liver oils
(f) Super D oil } Contain vitamins A & D.

Many of the proprietary compounds containing several vitamins are available in the following forms.

1. Abidol. Contains A, B1, B2. & D.
2. Myeladol. A, B. G. & D.
3. Accesserone. Contains vitamin A, B, C & G.
4. Vitrate. Contains yeast, malt and vitamin B & G as well as A & D & iron.
5. Vitol.
6. Mollers A, B, C, D, vitamin food.
7. Radio Malt. Contains vitamin A, B1, B2 & D.
8. Multivite pillets. Contains vitamin A, B, C & D.
9. Ferradol. Contains vitamin A, B1, B2, & D as well as iron.
10. Irvo. Contains vitamin A, B, D & E.
11. Ostomalt. Contains A, B complex C & D.

(A paper read before the fourth annual conference of the Kistna District Medical Association held at Masulipatam).

Selected Articles

SYPHILITIC AORTITIS, PATHOLOGY, DIAGNOSIS AND THERAPY

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Frequency of Syphilitic Aortitis. Syphilis is responsible for about 20 per cent of all cases of chronic disease of the cardiovascular system found in adults. About 20 per cent of all persons with acquired syphilis develop cardiovascular disease, which is a late manifestation. The average length of time from infection to the onset of cardiovascular symptoms is about 15 years. In luetic aortic regurgitation the average latent period is 20 years, in aneurysm 22 years. At autopsy we find that 75 per cent of persons with visceral syphilis have syphilitic aortitis. The serologic tests (Wassermann, Kahn) are positive in about 80 per cent of the various groups of cardiovascular lues. There are therefore 20 per cent of cases with luetic aortitis, aneurysm and luetic aortic regurgitation who give a negative Wassermann test.

There is a marked preponderance of the male sex in the entire picture of syphilis of the heart and aorta. About 80 per cent of the patients are males. Yet there is no marked difference in the frequency of luetic aortitis in the two sexes.

In females luetic aortitis usually takes a benign course. The severe supra-valvular forms of the disease, which cause aortic regurgitation, stenosis of the coronary ostia and aneurysm, are much more common in the male than in the female sex. Of 80 syphilitic aneurysms of the aorta seen by Dr. Richard Jaffe at the Cook County Hospital in Chicago in five years only six were in women. Five of these were in negro women.

It is an established clinical fact that syphilitic heart disease is about four times as frequent in the negro as in the white. In the colored race aneurysms are twice as common as in the white race. There seems to be more severe destruction of the media by the spirochetes in the negro, both male and female. Another factor may be the greater number of hard manual laborers among the negroes. It is also significant that essential hypertension is about three times as prevalent among negroes as among whites, often with marked arteriosclerotic renal changes. Greater damage to the media of the aorta, increased stress and strain, and the frequent occurrence of hypertension suffice to account for the higher incidence of aneurysm of the aorta, and its large branches, and of aortic regurgitation, in the colored race. Jaffe found an incidence of 8.5 per cent aneurysms in whites, and 16 per cent in negroes among 103 cases of syphilitic aortitis. These 103 cases of aortitis were found in 1000 autopsies, making an incidence of 10.3 per cent.

The percentage of aortic regurgitation found in cases of luetic aortitis averages 30 per cent, of aneurysm about 35 per cent. Stenosis of the ostia of the large arteries of the aorta is a frequent occurrence. The innominate, carotids and subclavians are involved in about 50 per cent. About 60 per cent of all cases of aortic regurgitation in patients past 40 years are syphilitic.

Pathology of Syphilitic Aortitis. Syphilitic aortitis is clinically a late manifestation of this disease. It is the most frequent cause of death in syphilis. The reason for the long average latent period of 15 to 20 years is not known. Infection usually occurs in the twenties and the highest incidence of luetic aortitis is near the 45th year. In congenital syphilis the latent period may be shorter.

The disease consists of a chronic inflammatory process which begins in the vasa vasorum of the adventitia and media. These small vessels undergo obliterative changes with secondary changes in the media. The media becomes infiltrated by round cells and plasma cells, the elastic fibers are destroyed. Small miliary gummas may even be formed, containing spirocheta pallida. There is an intimal thickening and wrinkling. The inner surface of the aorta becomes wrinkled and depressed by many small and large fibrous scars of pinkish or white color. Atheromatous changes are often combined with the luetic aortitis in an amount increasing with age. The mouths of the large vessels are often fibrosed and greatly constricted or entirely occluded. Thrombi may form in the narrowed lumen, especially when there is an atheromatosis. This stenosis of the ostia of the large arteries is of great value in diagnosis, leading to a pulsus differens, systolic thrills and murmurs along the course of the artery, or to complete absence of the pulse in one or both arms or even in the carotids. An absence of pulsation does not necessarily indicate that there is no blood flowing through the stenosed ostia.

As the aortic wall (in some cases also the innominate, carotid, subclavian or other large artery) loses its elastic layer the wall becomes weakened, and it stretches under the influence of the blood pressure. We shall see that this dilatation of the aorta is the earliest diagnostic sign of syphilitic aortitis, and can be diagnosed in at least 75 per cent of cases before the development of aneurysm, aortic regurgitation, or angina pectoris.

The width of the ascending aorta can be measured within 2 mm. with the fluoroscope and orthodiagraphic technique. It must be remembered that the aorta during life is stretched by the blood pressure, hence somewhat wider than post mortem. The determination of the size of the ascending aorta assumes the greatest importance in the early diagnosis of aortitis. The following figures may be accepted as normal values for the different ages:

30—40 years	2 —2.5 cm.
40—50 years	2.5—2.8 cm.

50—60 years	2.5—3.0 cm.
Over 60 years	3.0—3.5 cm.

When the orthodiagraphic measurement of the ascending aorta exceeds the above values syphilitic aortitis must be suspected. The length and width of the aorta depend upon the elasticity of the wall. When the elasticity is reduced the vessel becomes longer and wider. In old age this process is gradual and the above table gives the extent of the physiologic widening. With old age the aorta elongates and the arch rises, and the aorta becomes more tortuous. Hypertension may lead to slight widening and increased atheromatosis. The increased cardiac output in aortic insufficiency may cause some widening, together with the characteristic pulsation. Rarely rheumatic fever, mycotic infection, tuberculosis, or arteritis nodosa may lead to widening or aneurysm of the aorta.

Practically speaking, syphilis is the cause of aortic dilatation, and any marked dilatation must be looked upon as luetic.

The second important pathologic change is aneurysm formation. The aorta may dilate more or less uniformly, or locally. The wall may bulge in only one direction and produce a saccular aneurysm. Several bulgings may unite to form a large irregular aneurysmal sac. These may reach huge proportions, causing pressure symptoms or even rupture. Clots may form in the large sacs, with narrow channels for the blood stream to the larger arterial branches. Calcification of the wall may lead to a stationary condition.

The third, and one of the most important pathologic changes, is aortic regurgitation. This is found in about 75 per cent of the cases diagnosed clinically. The disease frequently attacks the aortic ring, especially at the commissures. The cusps become thickened, adhering somewhat to the aortic wall, and separate at the commissures. The ring becomes stretched, the cusps are too small to close the lumen in diastole and regurgitation results. There is regurgitation at each of the commissures when they are separated, and also in the center of the lumen: We need not here discuss the findings in aortic regurgitation.

Syphilitic aortitis causes regurgitation, *never a stenosis*. The only valvular lesion caused by syphilis is an aortic regurgitation, and rarely a pulmonary regurgitation. The mitral and tricuspid valves are not affected, except in rare instances of gumma of the myocardium.

The fourth important pathologic change is stenosis of the ostia of the coronary arteries. We have already discussed stenosis of the ostia of the large aortic branches. Coronary stenosis is a very frequent finding which leads to apoxemia of the heart muscle with angina pectoris, left ventricular failure with paroxysmal dyspnea (cardiac asthma) and pulmonary congestion, and often death. The stenosis is so gradual that one ostium may be totally occluded without

producing clinical symptoms or any gross myocardial changes. During the months or years that elapse there is plenty of time for the collaterals to enlarge so that the heart muscle gets its blood supply from the other coronary; and this may suffice when there is no marked hypertrophy of the heart and the patient avoids exertion. I have seen at autopsy four cases of luetic aortitis with total occlusion of one coronary ostium in patients with no clinical history of angina pectoris. Sometimes the ostium is covered by a small flap-like thickening of the intima. Also the presence of an aortic regurgitation reduces the blood flow in the coronaries still further by lowering the diastolic blood pressure. Sudden death is quite common in such cases of aortic regurgitation with stenosis of the coronary ostia. In very rare cases a supernumerary vessel may furnish blood to the myocardium.

A sudden occlusion of a coronary artery by a thrombus or embolus leads to myocardial infarction or myomalacia, with death from ventricular fibrillation, acute cardiac failure, or rupture of the infarcted area. Or, healing may take place with fibrosis, thinning, or partial heart aneurysm. This may also occur in syphilitic aortitis with sclerosis of the coronaries (which is non-syphilitic). The luetic stenosis is very slow and progressive, requiring years. The effect of a coronary occlusion, therefore, depends largely upon the rate of occlusion. It often appears as if the stenosis of the coronary ostia protects them to a certain extent against arteriosclerosis by reducing the blood flow and pressure in these small vessels. The length of time which is usually necessary for the development of uncomplicated syphilitic aortitis with angina pectoris or cardiac failure is about fifteen years.

Fifth, come the changes in the heart muscle itself. The heart is as a rule not affected by a luetic aortitis unless there be an aortic regurgitation or stenosis of the coronary ostia. Aneurysms may reach a very large size and yet the heart remain normal. With aortic regurgitation a great load is put upon the left ventricle and it undergoes marked hypertrophy and dilatation, often producing the "cor bovinum." There develops a relative mitral insufficiency with a change in the heart form. It becomes "mitralized." Then follows a compensatory involvement of the right heart with ultimate failure of the entire heart. In rare cases a diffuse syphilitic myocarditis is found, with marked cardiac enlargement and heart failure. Occasionally a gumma occurs in the bundle of His causing heart block, or a gumma leads to rupture of a papillary muscle. Syphilitic myocarditis is certainly much rarer than Warthin of Michigan believed. The fibrous changes found in older luetic individuals are more easily explained as a result of arteriosclerotic non-luetic coronary disease. Gummas or spirœchetes are rarely demonstrable post mortem.

Diagnosis. In syphilitic aortitis the diagnosis is of greatest value to the patient in the early uncomplicated stage, before aortic regurgitation, aneurysm or angina pectoris have developed. I shall therefore, stress the signs and symptoms which enable us to make the earliest possible diagnosis. Although regurgitation and aneurysm require about 20 years for their development, aortitis undoubtedly begins years before this time. In the first few years after the primary infection a clinical diagnosis of syphilitic aortitis is usually not possible, although early changes in the aorta and other arteries may already be present. A roentgen ray diagnosis can often be made during the first five to ten years after infection.

The earliest and most important diagnostic sign in syphilitic aortitis is the demonstration of a widening of the ascending aorta, or any other part of the aorta on fluoroscopic examination. We have already stated that any ascending aorta more than 2.5 cm. in diameter up to the age of 40, or 3.0 cm. to the age of 60, or 3.5 cm. above the age of 60 should be suspected of being luetic. This is especially true when the patient has a positive Wassermann, Argyll-Robertson pupils, absent patellar reflexes, syphilitic scars, perforated nasal septum or palate, any form of visceral lues, of central nervous system syphilis.

The entire contour of the aorta can be studied with the fluoroscope, and the ascending aorta accurately measured. In normal persons the right heart border consists of the right auricle, ascending aorta, and superior vena cava. The ascending aorta forms only a slight convexity beyond the right border of the spine in the postero-anterior view. Often the ascending aorta is not at all visible on the right side, especially in ptotic individuals with medianly placed heart. In obese persons with high diaphragms the heart is pushed up and more transversely placed and the arch of the aorta widened. The "aortic window" between the ascending and descending portion appears larger, but the aorta itself is of normal calibre. In the first or right anterior oblique position careful rotation of the patient enables the examiner to measure very accurately the width of the ascending aorta. With experience one can diagnose an early syphilitic aortitis from the increased prominence of the ascending aorta on the right side; its curve becomes fuller and the density of its shadow is increased in proportion to the dilatation. Orthodiagraphic measurement shows it to be wider than the normal. The aortic knob on the left side is often enlarged, and extends farther upward and to the left. The giving of barium paste enables one to measure the descending portion of the arch, from the concavity in the esophagus wall to the left border (Kreuzfuchs method). The normal symmetry is disturbed and the aortic arch becomes asymmetrical. The angle between the heart axis and the aortic oval often is altered (Kikinkboce's asymmetry rule.)

Although hypertension, aortic regurgitation, isthmus stenosis and marked atherosclerosis may cause slight aortic widening they are as a rule easily distinguished from the asymmetrical aortic dilatation of syphilitic aortitis. It must be remembered that luetic aortitis and atherosclerosis are frequently associated. It is never safe to assume a marked aortic dilatation as due to atheromatosis or hypertension. A definite aneurysm is practically always luetic. I have seen many cases of aneurysm with high grade atheromatosis. Some of these aneurysms remain stationary for years.

The patient should be rotated in both the right and left oblique positions, and the wall of the aorta in all of its parts should be studied for parallelism. Any departure from the cylindrical form is significant. In this manner aneurysms in the anterior or posterior wall of the aortic arch will be detected, also the not uncommon retro-cardiac aneurysms of the thoracic aorta.

The Second most important sign in early luetic aortitis without insufficiency is the *increased manubrial dulness*. Dilatation of the ascending aorta and arch usually produces dulness behind the sternum at the level of the second and often also the first right intercostal space. An area of dulness exceeding three inches (7.5 cm.) in width is very likely due to luetic dilatation of the aorta, or aneurysm. As the dulness increases it extends to the right and downward. It also extends to the left, but not so far. Dulness to the left of the spine posteriorly is quite common in dilatation of the descending thoracic aorta. The dilated aorta causes pulmonary compression and atelectasis and this is easily found on percussion to the left of the spine.

The increased manubrial dulness may be accompanied by localized pulsation, most often in the second right intercostal space near the sternum, or the second or third left interspace. An episternal pulsation with a palpable aorta or aneurysm behind the sternum is diagnostic.

The third most important diagnostic finding is the *tambour or bell-like, ringing, aortic second sound*. It has been compared with the sound of the arabian drum or "tabourka." This peculiar musical quality is probably due to the tension of the aortic cusps produced by stretching of the ring, and perhaps also some loss in elasticity, and thickening, of the aortic wall. When accompanied by a distinctly palpable second sound or diastolic shock the tambour second sound is very suggestive of luetic aortitis. The heart sounds are often unusually well transmitted to the chest wall in the region of the dilated aorta or aneurysm, because the thin lung layer is displaced or reduced in size. The large artery lies in contact with the chest wall.

The changed character of the aortic second sound is the first physical sign in early luetic aortitis. In patients with marked hypertension it is more difficult to recognize the tambour sound.

A fourth frequent finding is a *systolic murmur at the base*, found in about two-thirds of the case of uncomplicated luetic aortitis. The murmur is often harsh and heard best in the second right or left intercostal space near the sternum. It must be remembered that a systolic murmur at the base is a frequent finding in patients past middle life due to aortic atheromatosis or sclerosis of the aortic cusps in the absence of aortic syphilis. Therefore, a systolic murmur alone is not diagnostic of luetic aortitis. When due to syphilitic aortitis it is most likely produced by the intimal roughening and puckering, and also dilatation of the supra-valvular portion of the aorta or the arch. Furthermore, the stretching of the aortic ring keeps the cusps under tension in systole. This is the most likely cause of the systolic murmur. The systolic murmur usually accompanies the diastolic murmur of regurgitation.

To diagnose an aortic stenosis, which cannot be due to syphilis, the systolic murmur must be accompanied by a systolic thrill, pulses parvus, and evidence of rheumatic heart disease or sub-acute bacterial endocarditis. In rare cases arteriosclerosis of the valve may lead to a stenosis. In a young individual a systolic murmur in the aortic area, even when not accompanied by a systolic thrill, justifies the diagnosis of an aortic stenosis due to rheumatic fever, especially when a mitral lesion is present. When an aortic stenosis is found it must have some other cause than syphilis. The writer has seen two cases of rheumatic aortic stenosis combined with luetic aortitis and aneurysm. In fact, the healed rheumatic aortic stenosis was given as the explanation for the absence of regurgitation in spite of marked dilatation of the entire ascending aorta and arch. I have stated in clinics that if a mild rheumatic aortic stenosis could be produced many of these patients with luetic aortitis would be protected against the most serious result of this disease, aortic regurgitation.

A fifth important sign in the diagnosis of syphilitic aortitis is the *pulsus differens*, or even total absence of pulsation in one or more of the main branches of the aorta, the innominate, left carotid or left subclavian arteries. When the left carotid and left subclavian pulse, or only the left subclavian pulse, are weaker than the right an isthmus stenosis of the aorta must be considered. This is usually not difficult to diagnosis, especially when the blood pressure in the left arm and lower extremities is lower than in the right arm. Inequality in the strength of the radial pulses is frequent in syphilitic aortitis. Such a difference should be traced to the brachial and subclavian artery. Differences at the wrist alone may be due to differences in the size of the radials or to an anomalous position of the artery. If the right subclavian and carotid are both weaker, than the innominate ostium is affected. All three ostia of the main arteries arising from the aortic arch may be involved.

When the brachial pulse is weak the blood pressure is usually lower on that side. An absence of pulsation does not necessarily mean that no blood is flowing through the vessel. The causes of decreased pulsation in the large branches of the aorta in syphilitic aortitis are the following:

1. Stenosis of the mouth of the artery as part of the syphilitic aortitis, 2. thrombosis in an aneurysm or the artery near the mouth especially when there is an atherosclerosis, 3. deformity or compression of the ostium by pressure of an aneurysm, 4. rarely, an embolus from thrombi in an aneurysm.

Four years ago I saw a colored patient at the Cook County Hospital, who had no palpable pulse in the brachial or carotid arteries on either side. The findings were those of a diffuse syphilitic aortitis with dilatation of the arch of the aorta. There was no aortic regurgitation. The heart was of normal size. The Wassermann test was positive. This patient had frequent attacks of syncope which lasted for minutes. He also complained of cardiac pain on exertion. My diagnosis was a syphilitic aortitis with diffuse dilatation of the aortic arch, stenosis of the ostia of all three large branches of the aorta, and of the coronary ostia. The findings were confirmed at autopsy. The innominate ostium was only 2 mm. in diameter, the left carotid the same size, and the left subclavian entirely occluded.

A sixth sign of syphilitic aortitis is an aneurysm of any portion of the aorta, not infrequently the retro-cardiac portion, or of one of the large branches of the aorta. We have seen several cases of aneurysm of the abdominal aorta. At the Cook County Hospital I have seen eight cases of aneurysm of the innominate artery in the past five years. All were associated with the findings of a syphilitic aortitis. These cases are characterized by the development of a pulsating tumour above the right clavicle, with displacement and compression of the trachea. The superior vena cava may be compressed.

The other symptoms usually found in uncomplicated syphilitic aortitis are 1. pain, 2. cardiac failure, 3. dyspnea, 4. palpitation, 5. edema. These are not of diagnostic value unless a syphilitic aortitis can be demonstrated.

Angina pectoris is quite frequent with luetic aortitis. It is usually of a severe type and progressive. The pain is the result of slow narrowing of the coronary ostia. This leads to anoxemia of the heart muscle with accumulation of toxic waste products. At first the pain is associated with exertion, later it becomes very severe even at rest. Another factor in the causation of the anoxemia is the lowering of the diastolic blood pressure when aortic regurgitation develops. A certain number of the patients have hypertension with cardiac hypertrophy. The great increase in the volume of the heart

muscle associated with the marked hypertrophy causes a still greater demand for nourishment at the same time that the blood supply is being slowly reduced. Coronary thrombosis is not common in this group of patients. Most of them succumb to cardiac failure before the coronary sclerosis reaches a high grade.

The heart may reach a large size even in the absence of aortic regurgitation, and death from congestive heart failure is the rule. With left ventricular decompensation the patient develops attacks of dyspnea. Frequently these occur at night hence the paroxysmal nocturnal dyspnea. Few cases develop fibrillation. Failure with normal rhythm is the rule. The cardiac failure is progressive and usually causes death in six to eighteen months. Cheyne-Stokes breathing is very common. In obscure cardiac enlargement in patients over forty years of age syphilis should be considered. To make a definite diagnosis evidence of syphilitic aortitis must also be found.

Therapy: Cardio-vascular syphilis can be prevented by the treatment of all syphilitic patients in the sero-negative primary stage. This requires an early diagnosis by dark field examination of secretion from the primary lesion or enlarged lymph nodes. At this early sero-negative stage a permanent cure can be attained in a very high percentage of infected individuals. Such a cure requires at least eighteen months of continuous therapy with arsphenamine and bismuth or mercury. Twenty doses of arsphenamine and twenty doses of bismuth salicylate in 40 to 50 weeks are needed to assure permanent noninfectiousness. Thirty injections of the arsenical and thirty to sixty injections of a bismuth compound in the first two years should be the therapeutic objective to prevent recurrence and late manifestations of syphilis. With such treatment syphilitic aortitis would be prevented, as well as other forms of latent syphilis. A "cure" would be attained in about 90 per cent of patients with a primary lesion. In latent syphilis the length of time necessary for a cure is more than eighteen months to two years. The maximum results are obtained with about twenty injections of arsphenamine combined with large amounts of heavy metal, the latter prolonged over long periods of time.

Wile, in a recent review of a large series of patients with cardiovascular syphilis, found that two-thirds of the patients with uncomplicated syphilitic aortitis had received no treatment prior to the onset of their cardiovascular symptoms. Eighty-six per cent of the cases of the aortic aneurysm had received no treatment for syphilis prior to the onset or detection of symptoms. Practically none of the cases of syphilitic aortitis had received the present standard of anti-syphilitic treatment.

The average length of time between infection and the development of cardiac symptoms is fifteen years, and aneurysm or aortic regurgitation required an average of twenty or more years. Patients with latent syphilis who have no symptoms, physical signs or x-ray

findings of cardiovascular syphilis at the time of examination will require about ten years for this type of involvement to appear. In untreated latent syphilis about 20 per cent may be expected to develop symptoms of cardiovascular syphilis. The above statements indicate the great necessity of intensive treatment of all patients with latent syphilis to prevent its most serious and fatal consequence, namely, syphilitic aortitis.

The treatment of patients with clinical evidence of cardiovascular syphilis is still an unsettled problem. The chief measure in the treatment of syphilitic aortitis is rest, more or less complete according to the severity of the symptoms. Strain should be forbidden even in the mild cases. Overeating, excessive smoking, and the use of much liquor should be avoided. With cardiac enlargement, angina pectoris, aneurysm or aortic regurgitation the patient should remain quiet in bed, or in a reclining chair.

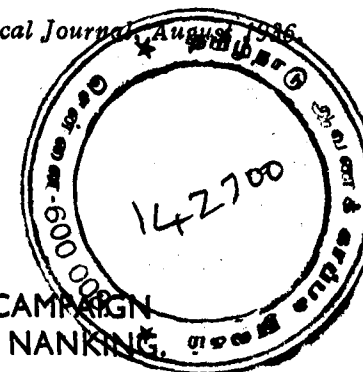
Angina pectoris and congestive heart failure are treated as for other causes. I wish to call attention to the great value of aminophyllin (given intravenously in doses of 4 to 7 grains in solution in about 10 cc. of water and injected slowly) in the treatment of the Cheyne-Stokes breathing of congestive heart failure. The result is usually very striking with great relief of the difficulty in breathing. This same treatment frequently relieves the pain in severe attacks of angina pectoris or coronary thrombosis. Salyrgan given in 1 to 2 cc. does intravenously is one of our most valuable diuretics, and at the same time is a useful mercurial antiluetic drug.

In the presence of congestive heart failure antiluetic therapy should be withheld until treatment of the failure has been successful. Hypnotics and narcotics may be necessary for insomnia and severe pain due to pressure by an aneurysm.

When the diagnosis of luetic aortitis has been established antiluetic therapy should be instituted at once, in the absence of congestive heart failure, serious renal or hepatic disease. Uncomplicated aortitis cases should receive potassium iodide in 10 to 20 grain doses three times daily for six to eight weeks. Mercury may be used by inunction, or intramuscularly (mercury salicylate $\frac{1}{2}$ to 1 grain once a week until 6 grains have been given). Then neoarsphenamine should be given once or twice weekly in doses from 0.3 to 0.6 gram until ten to fifteen injections have been used. It should be avoided in angina pectoris, and given very cautiously in aortic regurgitation. After one month the arsenic course should be repeated. Four or five complete courses of mercury or bismuth, iodides, and arsenic should be given over a period of two years. After a few months two more courses should follow. Large amounts of bismuth or mercury are more successful than arsphenamine in producing clinical and serologic negativity in latent syphilis. Very satisfactory results are obtained in a majority of cases, with decrease of the symptoms

and cessation of the growth of the dilated aorta or aneurysm. In aortic regurgitation very little can be accomplished with specific therapy. The cardiac failure must be treated with rest, digitalis, and morphine as in rheumatic cases. For aneurysm a low blood pressure should be maintained by rest, limited diet, and plenty of sleep. Clotting in an aneurysmal sac cannot be influenced. When there is bleeding absolute rest under the influence of morphine is indicated.

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SOME REMARKS ON A CAMPAIGN FOR TONSILLECTOMY IN NANKING

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In co-operation with the School Health Department of Wei Sheng Shu a campaign for tonsillectomy chiefly among the school children in Nanking was made in the Winter and Spring recesses in 1935. In the routine examination of the school children by the public health doctors the condition of the tonsils was noted. Three hundred and twenty four school boys and girls were advised to come into the hospital for tonsillectomy during the Winter vacation. Forty six actually were admitted to the Central Hospital and were operated upon at that time. Fifty three others mostly school children who had been seen in the outpatient department and were advised for operation were also operated upon at the same time. So there was a total of ninety nine tonsillectomies in the Central Hospital in two weeks time.

During the Spring recess sixty more were operated. This shows a slight increase in number which may be due to the fact that some of the parents of these children were encouraged to come by the good previous operative record. There were altogether one hundred and fifty-nine cases of tonsillectomy out of which one hundred and sixteen cases also included adenoidectomy.

Regarding the indications that ought to be kept in mind for the selection of cases they may be grouped in the following four:

1. *Hypertrophy of tonsils and adenoids.* These children have such an over development of the lymphatic tissue in the rhino and oro-pharynx that they form real mechanical obstructions. Due to this effect they become mouth-breathers. If they are nurslings they

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may even refuse to suckle the breast. Such cases are rare, nevertheless, they are existing emergencies. In cases of the older children they show the typical adenoid facies. There may be impairment of hearing due to the obstruction of the Eustachean tubes. So the appearance as a whole is very dull.

2. *Infection of the tonsils and adenoids.* Such infections may be manifested by recurrent attacks of sore throats or by the "common colds". The infection may spread to the ears, thus, otitis media and all its imaginable complications may be started by a simple infection in the naso-pharynx. The infection may extend to the lymphatic tissues of the neck giving rise to cervical adenitis or it may extend anteriorly into the sinuses causing sinusitis. Respiratory tract infections almost invariably start with a simple running nose. The relation of the descending cold to many a serious pulmonary diseases must be emphasized. When this fact is recognized a simple curettage of the nasopharynx will be able to prevent many of the severe complications. This is true especially in children, as in the case of adults sinus infection is usually responsible.

Peritonsillar abscess usually comes from acute infection of the tonsils. So the only prophylactic treatment of such abscesses is tonsillectomy.

Repeated attacks of acute tonsillitis may result in chronic infection. It may be manifested by hypertrophy or sclerosis of the organ with accumulation of septic caseous materials in the crypts. Such patients as a rule have very foul breath. Tonsillectomy is the only remedy for a cure.

3. *Tonsils as foci of infection.* In many diseases such as the rheumatic arthritis, the acute and chronic endocarditis and nephritis, the foci of infection may be situated in the tonsils. A definite history of tonsillar infection preceding the actual disease is most helpful in localizing the focus of infection. On the other hand the diphtheria carriers with the K. L. B. buried deeply in the tonsillar crypts may act as "foci of infection to society." So in such cases tonsillectomy will be the only way to remove the focus.

4. *Tonsils suspected to be the site of new growth.* Whenever the tonsils are suspected of a new growth the only way to cure is to remove the tonsil *en bloc* irrespective of age. The general condition of the patient and the possibility of its total removal must, of course, be taken into due consideration. But without an operation a cure is not to be expected.

For operation the method of choice has been by dissection and the snare method. Either local or general anesthesia may be used. The local anesthesia is used for adults where only tonsillectomy is done and the general anesthesia as used exclusively for children where adenoidectomy is done at the same time. In the 159 cases

above mentioned 43 patients were operated under local anesthesia and 116 under general.

For local anesthesia, with the Devilbiss atomizer the mouth is first sprayed with 4 per cent cocaine solution for a few times. This has the advantage over the painting method not only for its less disagreeableness to the patient but also to lessen the possibility of mixing up the cocaine and the novocaine by not having the cup of cocaine on the instrument table.

Two points are selected for the anesthesia of each tonsil. 1. one cm inside and one cm below the upper third molar about one cm in depth where will be found the palatine nerves. 2. Junction between the middle and the inferior third of the tonsil on the anterior pillar where will be found the glosso-pharyngeal nerve. Four cc of 1 per cent novocaine solution with four drops of 1:1000 adrenaline solution is injected into each point. Complete anesthesia takes place in about five minutes when the operation may be started by putting the Crowe-Davis mouth-gag in place.

After one tonsil is removed the mouth-gag is taken off so that the patient will be given a chance to rest and to spit out the blood. The blood if there be any spurting or oozing is controlled by sponging, clamping or tying with a catgut. The tying is but rarely necessary. The other tonsil will be ready to be removed when the first field is dry. For children where ether will be given there is no routine hypo. The patient is in the recumbent position with a small pillow under the shoulders. The same Crowe-Davis' mouth-gag is put in place and is held by the anesthetist. The tonsils are to be removed first and for the curettage of the naso-pharynx the ether is stopped so that after the adenoidectomy the child will be half awoken already.

All our cases came out smoothly. There was one case with slight secondary haemorrhage which stopped readily after the removal of the clot. There were three cases with slight post-operative fever for two or three days.

The value of such campaigns is quite evident to all of us. To-day many children are handicapped in their physical development and intellectual achievement by their diseased tonsils and adenoids. Yet their removal by expert hands is a very simple and safe matter. We are glad to take part in the initiation of this important programme and would like to see the close co-operation between the specialists and the public health officers in a nation-wide campaign.

(Chinese Medical Journal February 1937.)

Extracts.

RESULTS OF TREATMENT OF GENERAL PARALYSIS WITH MALARIA.

H. BUDULS. *Allg. Ztschr. f. Psychiat.*, Berlin. Feb. 3, 1936.

Malaria treatment has been used for 12 years at the Municipal Hospital for the Insane of Riga. (During this time 6,158 patients have been admitted, 637 of them (10.3 per cent) paralytics. This hospital not only receives patients in the acute stage of mental disease but is obliged to care for them when they are no longer able to live outside. So both acute and chronic cases are under observation.

Among the 637 paralytics admitted in the past 12 years 353 (55.4 per cent) were treated with malaria and then with salvarsan. Among the 353 treated with malaria 256 (72.5 per cent) left the hospital after treatment; 187 of them (53 per cent) were cured or improved and 69 (19.5 per cent) showed no visible improvement. Thirty-six of the malaria treated patients died in the hospital without having left it. The remaining 61 (17.3 per cent) have remained in the hospital hopelessly insane. Among those who left the hospital 67 (26.2 per cent) were readmitted later. Of these 37 (55.2 per cent) have died in the hospital.

In the earlier years of malaria treatment the mortality was higher than it is now. This is partly due to the fact that the cases for treatment were not selected as carefully and very advanced cases were treated, and partly to the fact that it was the custom at that time to permit longer series of fever attacks. It has been found that the results do not run parallel with the number of attacks and that the mortality is higher when a large number of attacks are allowed. The average number allowed now is 7 or 8. Among the unusual complications in the early years of treatment there were three cases of rupture of the spleen.

Many of the patients who were obliged to remain in the hospital in a hopeless mental condition improved a great deal physically. Malaria treatment not only improves the physical condition but lengthens life. This has not so far however encumbered the hospital greatly with old paralysis patients, as the number that have improved sufficiently to be discharged prevents such an accumulation.

Malaria treatment has a decided effect on the blood and spinal fluid findings. Among the patients who remained in the hospital seven years or more after the treatment only 28 per cent showed a decidedly positive Wassermann reaction in the blood. The spinal fluid reaction was positive in only 3.4 per cent. Many of the other characteristic reactions for paralysis such as the Nonne-Apenl Pandy, mastoc, and pleiocytosis were negative. The improvement,

in the blood and spinal fluid findings however does not run parallel with the clinical improvement. Some patients who showed remarkable mental improvement still had positive reactions and some who remained hopelessly insane showed normal blood and spinal fluid. Pathologic findings in the blood and spinal fluid may recur after years, the blood findings being more subject to variation than the spinal fluid findings. Among the paralytics who have been more than seven years in the hospital there is only one whose blood and spinal fluid findings have remained constantly positive.

A second malaria treatment in cases in which the patient has relapsed after the first one has not proved very successful at this hospital.

Complete cure of paralysis by malaria is rare if it occurs at all. While great improvements are brought about, the effect is as a general rule only a slowing of the process.

SUBACUTE PROGRESSIVE CONGENITAL SYPHILITIC MENINGITIS IN CHILDREN SIMULATING TUBERCULOUS MENINGITIS.

BY ROBERT DEBRE, JULIEN MARIE, AND A. BERNARD-PICHON.

Rev. Franc de Pediat., Paris. No. 1, 1936.

The authors describe a case in a child 6 months of age who entered the hospital for slight digestive disturbances. Two days later the clinical symptoms became those of tuberculous meningitis, so much so that this diagnosis was made in spite of the fact that the skin reactions to tuberculin were negative and there was a marked lymphocytosis. The skin reactions to tuberculin remained negative however and roentgenograms of the lungs were negative. The mother was then questioned and admitted that her Wassermann reaction had been strongly positive during pregnancy. The Wassermann and Kahn reactions were positive in the blood of the mother and in the spinal fluid of the child; finally the diagnosis of subacute congenital syphilitic meningitis was accepted and the child treated with binitiodide of mercury and bismuth. After three months and a half the lymphocytosis of the spinal cord became normal and the Wassermann and Kahn reactions negative. At the end of 5 months the child was discharged with the meningitis cured but with psychomotor retardation.

This case shows that subacute congenital syphilitic meningitis may simulate tuberculous meningitis so closely as to deceive even the most skilled clinician. There may even be fever as in this case. This form of meningitis may attack the nursing infant or the older

child and may end in death, complete recovery, or recovery with sequels (psychomotor retardation). It is decidedly affected by antisyphilitic treatment which should be prudent but nevertheless sufficiently energetic and prolonged. A congenital syphilis with positive biologic reactions may be associated with a meningitis of tuberculous or other etiology, so a positive Wassermann reaction does not necessarily mean that the meningitis is syphilitic. Another case is described in a child nine years of age illustrating this point. The Wassermann and Kahn reactions were positive in the child and her parents. Examination for tubercle bacilli was negative, and antisyphilitic treatment brought about a remarkable temporary improvement with decrease of the leukocytosis in the spinal fluid, and negative Wassermann and Kahn reactions. But the child grew worse later and died. Only inoculation in guinea pigs, which did not become positive until after her death, showed the tuberculous nature of this meningitis.

Strict proofs, therefore, must be required of the syphilitic nature of the meningitis. Nevertheless as such cases do exist, lumbar puncture should be performed in doubtful cases and mercury treatment given.

TWO EXTRAORDINARY CASES OF LATENT GONORRHEA.

G. FRANCK. *Schweiz. med. Wchnschr.*, Basel. July 25, 1936.

In connection with a discussion of the question of gonococcus carriers the author reports two cases of latent gonorrhea. The first case was described in Feb. 1930 in *Annales de dermatologie et de syphiligraphie*. The patient was a man of 46 who had contracted gonorrhea at the age of 19, which was followed by arthritis. He was cured in five months. In spite of all precautions he had a second attack six years later with arthritis and iritis. He recovered from this attack also and remained well for 15 years. After that time, at the age of 40, without any genital infection he had violent pain in the left eye which had been the site of the iritis 15 years before and another attack of iritis developed, accompanied by arthritis. Iridectomy was performed but iritis developed then in the right eye also. Iridectomy had to be performed on this side also and vision was reduced in both eyes to *rv*. The most careful search did not reveal any focus of gonococci. It was not until 1934, when the patient had been in hospital for 4 years and had certainly not had any sexual relations, that injections of olobintin caused a purulent

urethral discharge in which gonococci could be demonstrated. The only anomaly that could be discovered on examination was a very slight enlargement of the prostate which had probably been the focus from which these multiple infections had taken place.

The second case was recently observed by the author. Early in January 1936 a young woman was sent to a surgeon for operation for bartholinitis. The surgeon found gonococci in the cervix and vagina. The girl did not know of any venereal infection. She had become engaged two years before but did not have any symptoms after relations with her fiancé. He had never been infected. She became engaged a second time and did not note any symptoms after this relation either. The second fiancé did not know of having been infected but examination of a smear from the navicular fossa showed typical gonococci. He had never had any discharge or visible signs of gonorrhea. There were no signs of gonorrhea in the prostate, vesicles, or elsewhere in the genital tract.

This was an undoubted case of a carrier who had not been infected himself and the author believes that such carriers are not rare.

Medical News and Notes

MEDICAL RESEARCH IN BRITAIN.

PROGRESS IN THE LAST YEAR.

The scientific researches carried out by members of the scientific staff of the Medical Research Council and by other workers supported by grants-in-aid cover the whole field of medical research; it is possible to refer to only a few of the more outstanding advances during the past year in this review, (says *Nature* of May 15).

Investigations have been continued on the properties of different viruses: in the case of influenza, it has been shown that the virus obtained in various outbreaks of the disease in widely distant parts of the world is identical with that originally isolated in Great Britain. Conclusive proof has also been obtained of the identity of the experimental disease in ferrets with influenza in man; an infection originally obtained from human sources and since passed repeatedly from ferret to ferret, has been retransmitted by accident to a human being. Progress has been made in the study of methods for the immunization of man against this disease by use of vaccines; but nothing suitable for application in more than an experimental way has yet been achieved.

A new method of determining the size of the particles of different viruses has been used to check results obtained by differential filtration. The rotor of a Sharples centrifuge, closed at the lower end, is lined with a thin layer of a weak agar gel, which is allowed to set during rotation: the suspension to be separated forms a layer only a small fraction of a millimetre in depth on the surface of the agar when the rotor is spinning, so that the particles become entangled in the gel and are protected from resuspension when the rotor is decelerated. The correspondence between the figures given by filtration and centrifugation has been found in all cases to be a good one.

A characteristic of the known pathogenic viruses has been the failure, hitherto, to grow them in artificial culture media free from organized cellular material which they can infect. A group of free-living non-pathogenic organisms, of about the size of vaccinia virus, has now been discovered living in London sewage; they grow readily on ordinary bacteriological media in which they can be maintained indefinitely in pure culture. The suggestion that propagation of viruses is possible only under conditions of intra-cellular parasitism, since the system of enzymes and surfaces necessary for self-reproductive life could not exist within a sphere of such small diameter as that of a virus, is therefore inapplicable to viruses of the size of the vaccinia group—about 150 millimicrons. The existence of these free-living organisms raises the hope that means may yet be found for growing some of the pathogenic viruses in artificial culture.

Analysis of some recent studies of nutrition in Great Britain has shown the relative constancy in the distribution of calories between protein, fat and carbohydrate eaten by people in different towns: in particular, the percentage of protein eaten is constant, at 10-11 per cent in St. Andrews, Cardiff and Reading. In spite of this, the types of foodstuffs eaten are widely different: in fact, the constant percentage intake of protein and the similar calorie intake of people living far apart, are obtained independently of the type of foodstuff eaten and seem to represent the result of some kind of instinct. As regards the daily calorie intake, a recent investigation of the diet of more than a hundred women students showed the daily intake to be 2,035 calories per person. This intake is considerably less than the usual standard of 3,000 calories, which has itself been considered by some workers to be too low. The analysis of these diets led to the conclusion that few can be considered really poor: on the other hand, many of them, particularly with reference to their content of 'protective' foodstuffs such as milk, green vegetable and fruit, leave much to be desired. The remedy is the education of the average house-wife in the relative nutritive value of different foodstuffs.

Epidemic Diseases.

Epidemic diseases still remain one of the greatest enemies of mankind, although some have been partially or even completely conquered. Problems relating to the spread of epidemics have been studied by field investigations of epidemics naturally occurring among human beings; but there are still many problems which have resisted field investigation because the difficulties of collecting statistical evidence prevent the assessment of the importance of inter-related factors. The experimental study of the spread of epidemics in a population of mice, as carried out for many years at the London School of Hygiene and Tropical Medicine, has provided answers to certain of these problems. Thus it appears that in large herds living under conditions favourable to the spread of epidemic disease, and receiving regular additions of healthy animals, the disease will persist indefinitely. The form of the mortality curve and the size of the herd are determined mainly by the rate of immigration. In epidemics initiated by virulent organisms, the rate of mortality during the early days of herd life is high, reaching a low level between the fortieth and sixtieth days of cage life. The expectation of life from the twentieth to the thirtieth day rises continuously but never reaches that of normal healthy mice. It is considered that both selection and natural immunization play a part in the increased average resistance displayed by surviving animals the latter being the more important.

Another important subject which is discussed in the report is the problem of the prevention and treatment of puerperal (or child-bed) fever. Summing up the present position, the report states that modern investigation suggests two lines of prevention, with a reserve line of treatment if the first two lines of defence are broken down. First childbirth should be so conducted that access of pathogenic organisms to the birth-canal is rigorously excluded, especially streptococci from the throats of medical attendants, friends or the patient herself. Secondly, the diet should be of such a nature as to raise the resistance to infection to the highest possible level; this means an ample consumption of milk, green vegetables and other protective foods. Finally, if infection does occur, there is evidence that the new chemotherapeutic compounds, 4-sulphonamide-2-4 disminoazobensol and p-aminobenzene sulphonamide, will reduce both the mortality and the incidence of complications.

THE TINNEVELLY DISTRICT MEDICAL ASSOCIATION, PALAMCOTTAH.

(Affiliated to the Indian Medical Association).

The Tinnevelly District Medical Association held its monthly meeting at Palamcottah on Saturday the 29th of May 1937, in the premises of the St. John's College. Members numbering 62 including

3 women doctors were present. After tea and music, the meeting began under the Presidentship of Lieut. Col., T. S. Shastri, I.M.S., the President of the Association. The Secretary read the minutes of the last monthly meeting, held at Tiruchendur on Saturday the 24th of April 1937, which were passed. The Secretary read the Code of Medical Ethics for the information of the members of the Association. Dr. M. Shenbagam Pillai of Sivagiri, read out the notes of a case of Calculus in a female urethra. Dr. P. S. Srinivasan, L. M. P., of the Government Headquarters Hospital, Palamcottah, read out clinical notes on some interesting cases which were successfully operated and treated at the Government Headquarters Hospital, Palamcottah, by Lieut. Col. T. S. Shastri, I.M.S.

The cases were fully discussed by the members. Thereafter, the President, brought the meeting to a close by his remarks on each case and summed up the salient and important features of all cases. He thanked the College Authorities for placing the College Hall, at the disposal of the Tinnevely District Medical Association for holding the meeting. An excellent Dinner brought the happy gathering to a close late at night.

THE MEDICAL PRACTITIONERS' ASSOCIATION NUZVID. A special meeting of the above Association was held at Nuzvid in the local Government Hospital premises on Sunday the 6th May 1937 with Dr. G. V. Krishnaiah L. M. P., in the chair. The members, all standing, passed a condolence resolution upon the death of one of the members of the Association Dr. B. Ekambaraiah of Nuzvid on 29.5-'37 and resolved to convey their deep and heart-felt condolences to the members of the family in their bereavement. Many members spoke on the life-history of the deceased member who died at a young age of 30 and was an active enthusiastic practitioner and whose domestic worries were to a good extent responsible for his Chronic ailment of a vicious nature and ultimately resulted in his death. The meeting came to a close by 5.30 p. m.

KODAIKANAL MEDICAL CONFERENCE. A Medical Conference was held on the 27th May 1937 in the premises of the Kodaikanal Missionary Union and it concluded yesterday. There was a large attendance. Dr. West of Parlakimedi (Orissa) presided.

The proceedings commenced with a devotional address by Dr. Paul Harrison of the Arabic Medical Mission followed by a brief speech by the President welcoming the delegates. A report of the Van Allen Hospital, Kodaikanal, was presented by Dr. Wilder and at the first day's session Rao Bahadur A. Lakshmanaswami Mudaliar and Dr. Ysander of Tirupattur spoke on subjects of medical interest.

The delegates and visitors to the Conference were entertained yesterday afternoon to tea by Dr. Chone Oliver at the Kodaikanal Missionary Union premises. The conference concluded with the

President's concluding remarks and vote of thanks proposed by Dr. (Miss) Jefferson of the Vellore Medical School, Secretary of the Madras Section Medical Association.

INDIAN MEDICAL COUNCIL. It is understood that a meeting of the Indian Medical Council will be held in Simla on August 25 and 26 when, among other things, the question of reciprocity in regard to the recognition of Indian Medical degrees by foreign countries will be considered. The meeting will also consider the appointment of the Secretary of the Council. The Executive Council will probably meet on August 23 and 24.

TUTICORIN MEDICAL UNION. The third anniversary of the Tuticorin Medical Union was celebrated 29th in the S. A. V. School premises. At 4.30 the members were entertained to tea. A public meeting was held under the presidency of Dr. K. Srinivasaraghava Iyengar, Civil Surgeon and President-Founder of the Union.

The report and audited accounts of the Union was then read and presented by Dr. V. K. Seshadri, L.M.P., Secretary of the Union.

Dr. Noble, Chief Medical Officer of the Catherine Booth Hospital, Nagercoil, delivered a lecture on "Recent advances in Medicine and Surgery." He referred to the modern treatment of glaucoma, the practical details of the operation and then referred to the use of radium in the treatment of many diseases and of the advances made in the direction as of using rays emanating from radium through tubes, the advanced shock-proof X-Ray apparatus and its advantages, etc. With a few concluding remarks from the chair and a vote of thanks proposed by the Secretary the function came to a close with a dinner in the night.

GUNTUR MEDICAL ASSOCIATION ANNIVERSARY. The second anniversary of the Guntur District Medical Association was held on 29th May 1937 at the premises of the Government Training School under the presidency of Capt. Davis, I. M. S., District Medical Officer, Guntur, before a large gathering of both official and non-official medics from all parts of the district. Capt. Davis, in the course of his preliminary remarks, drew attention to the existence of a parallel association in Guntur and wished that both the associations were amalgamated and began to do some useful work. He said that in a place like Guntur, there was so much of scope, and it was a great pity that medical men could not come together for common purpose. He urged that the Association also affiliated itself to the All-India Medical Association. The two local associations must work together in harmony and all differences that existed before should be forgotten. After election of office-bearers for the coming year, in which Capt. Davis was re-elected President, the function came to a close.

KURNOOL MEDICAL ASSOCIATION. The meeting of the District Medical Association was held in the premises of the Government Headquarters Hospital on the 29th instant. Mr. E. A. Varada Iyer, D.M.O., presided. The minutes of the last general body meeting was read. Dr. O. Subramaniam read a paper on "Critical survey of metabolic diseases". The meeting terminated after a dinner at the District Board Buildings.

WARNING NOTICE.

MADRAS MEDICAL COUNCIL.

The Madras Medical Council resolves to inform all Registered Medical Practitioners to conform to paragraph 24 of the Code of Medical Ethics, as published by the Council. Whenever they are asked in a Court of Law to divulge professional secrets, they should first of all claim privilege, not to divulge the same, and, if this is overruled by the Court, get this claim recorded and then answer the questions under the express direction of the presiding Judge or Magistrate.

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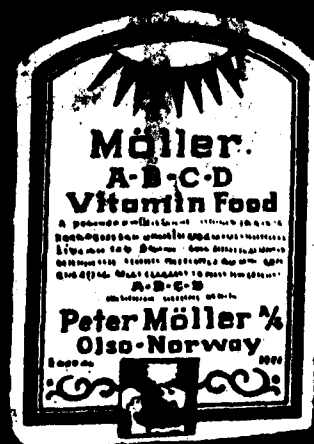
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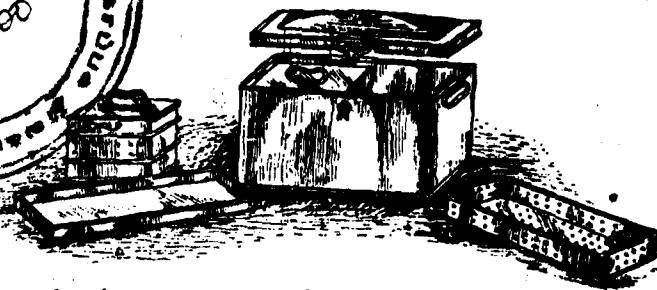
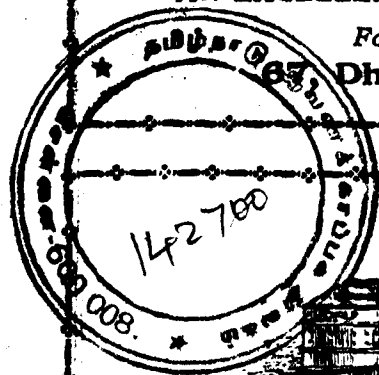
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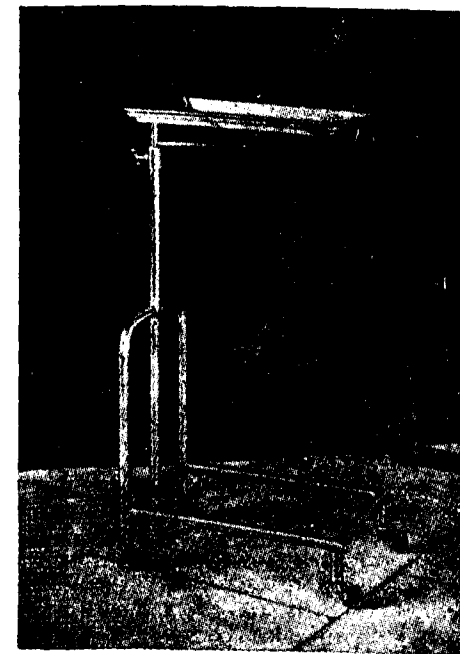
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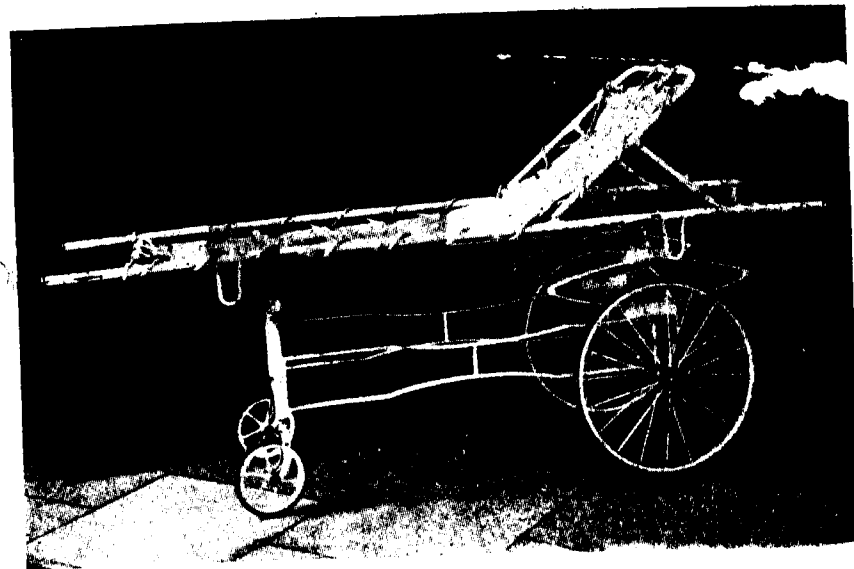
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