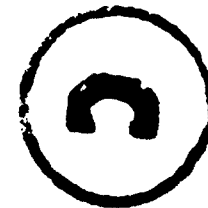


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MEDICAL SURGICAL SUBSTITUTIONS

VOL IX

NO. 9

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Vol. IX.

SEPTEMBER 1940

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A MONTHLY JOURNAL OF PRACTICAL MEDICINE & SURGERY
Editor: Dr. P. R. Venkappaya.

VOL. IX SEPTEMBER 1940 No. 9

CONTENTS

ORIGINAL ARTICLES—	PAGE.
Cerebro-Spinal Fluid in Health and Disease—By M. G. Pradhan, Ph. D., (Lond.), D.T.M. & H. (Eng.) ...	259
Functional Bleeding of Uterus—By Dr. B. L. Kapur, M. D., (Berlin) ...	267
ARTICLE—	
The Management of Diabetes—Philip Corr, M.D. ...	272
EDITORIAL ...	277
EXTRACTS ...	280
MEDICAL NEWS AND NOTES ...	285

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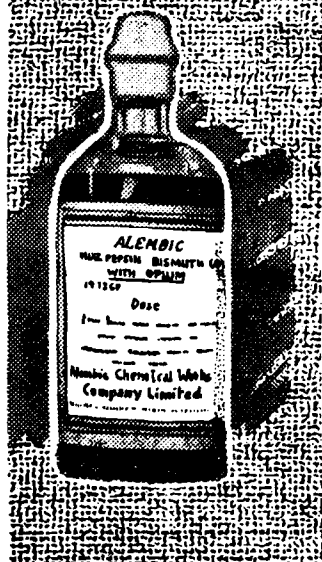
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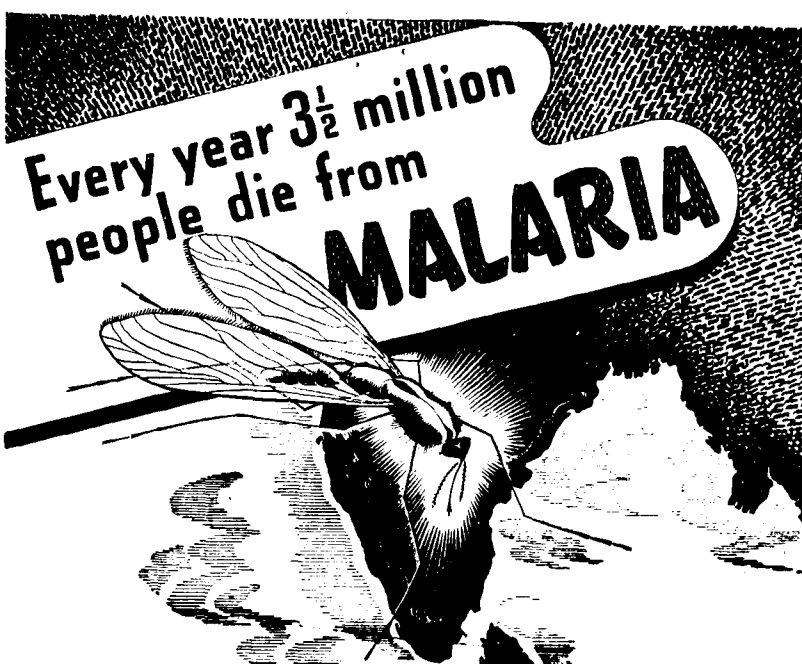
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VOL. IX

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Original Articles.*

CEREBRO-SPINAL FLUID IN HEALTH AND DISEASE.

BY M. G. PRADHAN PH.D. (Lond.), D.T.M. & H. (Eng.)

Hon. Asstt. Lecturer in Bacteriology, Grant Medical College, Bombay.

The examination of cerebro-spinal fluid is an important routine procedure in the practice of any large general hospital. It is essential, therefore, to have a clear conception of the physiology of the fluid in order to be able to interpret the significance of the different pathological changes that are obtained in the fluid as a result of disease.

The cerebro-spinal fluid may be regarded as a special form of tissue-fluid. It is formed by the choroid plexuses in the lateral ventricles and its formation depends upon the same factors that are responsible for the formation of any other tissue-fluid i.e. the pressure inside the choroid plexuses is greater than the osmotic pressure of the surrounding tissue proteins with the result that outward filtration takes place. The fluid therefore is a sort of a dialysate from the blood plasma.

An adult person has about 100 to 150 c.c. of C. S. F. which circulates from the cavities of the brain to the surface. The ventricles are all connected by foramina, so that ultimately when the fluid reaches the fourth ventricle, it escapes from the fourth ventricle into the cisterna magna which is below and behind the brain. Here nearly 4/5th of the fluid goes up over the brain surface, while 1/5th goes down round the cord. The absorption of the fluid takes place through the arachnoid villi depending upon osmosis and filtration. Normally the fluid is under a certain pressure which is seen clinically by the rate of the flow at which the fluid escapes through the lumbar puncture needle.

* A lecture delivered before the J. J. Hospital Post graduate Clinical Union.

If it were not possible to obtain the fluid from a living subject, we as clinicians would have had no further interest in it. But we can obtain it very easily by a lumbar puncture and can study the different changes that are effected in it as a result of disease. The fluid can also be obtained by a cistern puncture but since the lumbar puncture method is the easier and commoner mode of obtaining it, the C.S.F. henceforth referred to will be the lumbar puncture fluid. The normal fluid is watery clear, alkaline in reaction with a specific gravity of 1004 to 1006. It consists mainly of water, very little i.e. about 0.02 % of proteins and contains all the organic and the inorganic constituents of the plasma. The sugar is nearly half that of the blood, from 0.05 to 0.08 per cent. while the chlorides are concentrated by about 25%. The number of cells is about 5 per c.mm., never exceeding 10, and normally these are all lymphocytes. Bacteriologically, the fluid is sterile.

Having known the physiology of the fluid we will now proceed to consider the pathological changes.

As we obtain the fluid the first thing we notice is the pressure. With a normal pressure the rate of flow through the needle is 1 drop per second. This can actually be gauged by connecting the needle to a water manometer. Normally this is about 100 to 200 mms. of water. Sometimes the pressure may be so greatly increased that the fluid actually spurts out.

Pressure on the jugular vein during the puncture causes an increase in the fluid pressure. If there is some blocking of the subarachnoid space either due to meningitis or tumours of the cerebellar fossa, this increase of pressure on jugular pressing does not occur. In partial block the pressure on the jugular causes a rise in pressure which does not fall quickly on removal of that pressure. When the total volume of the fluid is increased as in hydrocephalus or meningitis or injury, the pressure also is increased. In meningitis or in injury there is increased amount of albumin in the fluid with the result that absorption is less rapid. Consequently there is increased amount and increased pressure. In tumour of the brain the increased intracranial pressure is imparted to the C.S.F. We all know the danger of too rapid a removal of the fluid in a case of cerebral tumour.

After collecting the fluid one proceeds to examine its appearance or the transparency. The normal fluid is watery clear. However the fluid can be quite clear and will be pathological. In encephalitis or poliomyelitis and in syphilitic or tubercular meningitis the fluid may be clear with perhaps a few fibrin flakes floating.

The fluid may be blood-tinged. The causes of a blood tinged fluid are (1) rupture of a small vessel during puncture, (2) subarachnoid hæmorrhage and (3) ventricular hæmorrhage. In the case of a bloody tap, if the fluid as it comes out is received in successive tubes, only

the first few c. c. s. contain blood while the later tubes contain clear fluid. Blood coming from an intracranial hæmorrhage is intimately diffused throughout the fluid and the first tube contains as much blood as the last. On centrifuging, the supernatant fluid in case of an intracranial hæmorrhage of some standing shows a yellow colour. This is called xanthochromia and the intensity of the colour will depend upon the duration of the hæmorrhage.

Xanthochromia is also seen in cases of spinal cord compression and consequent venous stasis; as a result the veins become dilated, their internal pressure rises and blood corpuscles and plasma containing much protein ooze out. This sort of spinal cord compression may be caused by (1) tuberculosis of the spine with an abscess pressing on the cord, (2) chronic spinal meningitis, (3) transverse myelitis with a zone of meningitis between the cord and the dura, and (4) tumours of the cord and the meninges. The protein is much increased, even upto 4%, the albumin globulin ratio remaining the same as in the blood, and there is spontaneous coagulation of the fluid. The yellow colour comes from the Hb of the extravasated red blood cells. In partial block the yellow colour may be absent but the protein content is high.

If the fluid is not clear nor blood-tinged, then it may be either opalescent or frankly turbid. The turbidity of the fluid is always due to the increase of the cells in the fluid. An increase of lymphocytes even upto 400 per c.mm. does not give rise to visible turbidity. With the increase in the number of cells there is always an increase in the amount of protein and one must then examine the fluid for coagulum. With a polymorphonuclear exudate the coagulum is purulent while with increased lymphocytes the coagulum will be seen as a fine cobweb. This happens most commonly in tuberculous meningitis and therefore a cobweb has come to be associated with tuberculous meningitis. But it is not pathognomonic of that condition. In the early stages of pyogenic meningitis before the fluid has become purulent, the coagulum may be like a cobweb. A cobweb may be seen also in cases of encephalitis or poliomyelitis. If there is an excess of blood in the fluid there may be coagulation.

Cytology of the Fluid: One of the most important parts of the examination of the C.S.F. is to find out the number and the type of cells present in it. A total cell count has to be done early—before a coagulum has formed. Of course, one may rest assured that whenever there is a coagulum there will be an increase in the number of cells though the exact number cannot be determined. We have seen before that normally the fluid may contain up to a maximum of 10 per c.mm. An increase in the number of cells is a very definite evidence that there is meningeal irritation or inflammation. This may be either an acute or a chronic infection or severe irritation due to the presence of certain toxins. In subarachnoid hæmorrhage the

extravasated blood acts as a foreign body irritant to the meninges which pour forth an exudate as a reaction. As a general rule chronic infections like syphilis or tuberculosis will cause a moderate increase in the total number of cells—mostly lymphocytes. Upto 200 lymphocytes suggest that the infection is chronic, though in C. N. S. syphilis, especially in meningovascular syphilis and G. P. I. counts upto 500 are not uncommon. In tuberculous meningitis anywhere from 20 to 1000 cells mostly lymphocytes, may be seen; but I have seen cases of meningitis following acute miliary tuberculosis where the cells were more than 1000 per c.mm. with more than 92% of them being polymorphs. Usually with a polymorphonuclear count over 500, we should look out for pyogenic meningitis excepting early stages of acute anterior poliomyelitis where you may get a cell count of over 500 with polymorphs predominating. In bacillary infections there is lymphocytosis, the total number sometimes in cases of typhoid or influenzal meningitis going beyond 500. In virus diseases like encephalitis or benign lymphocytic meningitis the lymphocytes may be increased upto 200. Trypanosomiasis is a protozoal infection where there may be an enormous increase in the cells, mostly polymorphs. A mild increase upto 20 cells is seen in herpes, chronic encephalitis, disseminated sclerosis, and brain tumour. Sometimes in acute infectious fever you get all the symptoms of meningitis without the infection actually invading the meninges. That is probably due to irritation by toxins and a count as high as 50 lymphocytes may be met with. I have seen a case of acute bacillary dysentery with intense headache where the cells were increased to 15. Similar finding may be obtained in typhoid or influenza.

With this very wide variation that is obtained in the cellular count in any one condition, we must try to understand the exact pathogenesis of the cellular increase so that we may attach the appropriate significance to our finding. The cellular exudate is poured into the C. S. F. by the meninges as a response to external stimuli either in the form of an infection or mechanical presence of R. B. Cs as in a haemorrhage. The response therefore will depend entirely on the intensity of the stimulus. Cocci, as a rule, elicit a polymorphonuclear response while the bacilli give rise to a lymphocytic one. This will also depend on the stage of the disease. The first reaction to an outside stimulus is a proliferation of the normal cellular content. As the disease progresses and the intensity of the stimulus increases on account of the presence of a large number of micro-organisms, polymorphs are poured fourth and one gets a purulent exudate. I have seen a fluid which contained only 400 lymphocytes but which later on bacteriological examination gave a pure culture of *Neisseria intracellularis*. This fluid was obtained too early in the disease before the exudate changed from the normal lymphocytic to polymorphonuclear. As against this case, one may mention

the case of tuberculous meningitis quoted above. In acute miliary tuberculosis the exudate can be purulent.

A total cell count and the examination for the type of cell done at different intervals during the course of treatment of a long-standing case give a valuable guidance in treatment and prognosis. A progressively lower count means a favourable state of affairs. For a differential count the fluid must be well mixed. It is not right to do a differential count on a slide prepared from a coagulum. For I have seen that the fibrin clot has a greater affinity for the polymorph than for the lymphocyte.

Proteins.—An increase in the cells is always associated with an increase in the protein content of the fluid. Normally there are only about 20 mgms. of protein per 100 c.c. of the fluid. Both the globulin and the albumin are increased but the proportional increase of either varies in different conditions. In acute meningitis the albumin is increased in excess of the globulin while the globulin increase is significant in G.P.I. In meningo-vascular syphilis the albumin and the globulin are equally increased. However, in certain conditions like disseminated sclerosis and some cases of encephalitis there may be a rise in the cellular content without a corresponding rise in the protein content. On the other hand, a little increase in the globulin content is about the only pathological finding in some cases of encephalitis or meningism. Excess of globulin is also found in cases of tumours pressing on the cord or inside the ventricles. The tumour causes an increased pressure giving rise to venous stasis resulting in the exudation of blood proteins in the C.S.F. Increase of proteins causes coagulation. Of course, it is understood that when we attach any significance to the increase of proteins there is no admixture of blood in the fluid. Any fluid which does not contain any blood but shows an increase in the protein content is definitely pathological.

Of the other constituents of the C.S.F. variations in whose concentration is an evidence of pathological change, sugar and chlorides are the most important. The other constituents are the same as in plasma. Urea estimation helps in the diagnosis of uræmic convulsions because the urea content of the C.S.F. closely follows its concentration in the blood. Besides withdrawal of the fluid forms a very important therapeutic measure in uræmia. The fluid so obtained may be used for diagnosis and a separate blood-urea estimation need not be done.

Sugar: The sugar content of the C.S.F. is nearly half that of the blood. As an ordinary routine only a qualitative test is done and to the practised eye the degree of copper reduction judged from the colour change is enough to suggest whether the sugar is absent, diminished, normal or increased.

MEDICO-SURGICAL SUGGESTIONS

In all pyogenic meningitis the organisms during their growth and multiplication use up the sugar and consequently the sugar may be completely absent or very much diminished. In tuberculous meningitis in the early stages the sugar may be normal and may be diminished only in the later stages. Seldom it is completely absent as in pyogenic meningitis. The C.S.F. sugar level is directly proportional to the blood-sugar level and therefore all other causes that either increase or decrease blood-sugar will affect correspondingly the C.S.F. sugar. The chief causes of a lowered C.S.F. sugar apart from bacterial action are (1) hypoglycæmia and (2) glycolysis by ferments of polymorphs and R.B.Cs.

In encephalitis on the other hand the sugar content of the C.S.F. will be either normal or even increased. This fact is of great help in the diagnosis of doubtful cases.

Chlorides.—Estimation of chlorides is of very great importance in the routine C.S.F. examination. The chlorides in the C.S.F. reckoned as NaCl are about 700 to 750 mgms. per 100 c.c. During the formation of the C.S.F. they are concentrated by about 25%, so that while the blood chlorides are about 550 to 600 mgms, the C.S.F. value ranges from 700 to 750 mgms. The chlorides are increased in nephritis with oedema. In pneumonia the blood chlorides are diminished; if there is pneumococcal meningitis complicating pneumonia we get diminished chlorides in C.S.F. In pyogenic meningitis the chlorides are diminished but not to the same extent as in tuberculous meningitis. In pyogenic meningitis it is common to get values between 630 to 700 mgms. while in tuberculous meningitis the value is definitely lower than 600, between 550 and 600 mgms. In a series of cases at the J. J. Hospital, I have never found chlorides to be more than 600, always between 550 and 600 mgms., in all those cases that were definitely proved to be tuberculous by the demonstration of the specific micro organism. Recently a case was observed over some days. In the earlier stages an increase in the protein content and an increased lymphocyte count were the only pathological findings in addition to a chloride content of 670. The sugar was normal; and no T.B. could be detected. On successive examinations the protein and the cells increased, the sugar was diminished and T.B. began to be found when the chloride level had reached 570 mgms. The explanation of the lowering of chlorides in meningitis is not quite satisfactory. It is presumed that due to inflammatory changes there is increased meningeal permeability and the choroid plexus is unable to concentrate the chlorides and allows them to pass out at the same concentration as in the blood. A progressive lowering of chlorides suggests that the subarachnoid space is getting more and more involved.

Bacteriology.—All the previous findings like the protein increase and the cell count or the presence or absence of sugar are but an

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Bacteriology.—All the previous findings like the protein increase and the cell count or the presence or absence of sugar are but an

indirect evidence of the presence of inflammation due to micro-organisms. The only direct evidence really is the demonstration of the specific micro-organism either in smears, culture or on animal inoculation. In case of virus diseases the viruses can neither be seen nor cultivated. In a few cases the disease can be transmitted to monkeys but the procedure is elaborate and expensive and therefore unsuitable as a routine measure. But no such difficulty arises in cases of bacterial meningitis. A smear made from the purulent fluid may directly show the causative micro-organism. Pneumococci and other pyogenic cocci are always present in large numbers while it may be difficult to demonstrate the meningococci in smears made from even frankly purulent fluids. In case of purulent meningitis, therefore, an absence of micro-organisms in the smear is a strong evidence in favour of the meningitis being meningococcal. If smears fail to show the germ the fluid should be cultured. A preliminary incubation of the fluid before actually sowing on the medium helps where the organisms are scanty. Though it is the general rule that pneumococci if present can be very easily demonstrated in smears, there have been certain exceptions in my experience. Recently I have been able to obtain a pure culture of pneumococci in a suspected case of pneumococcal meningitis where the C. S. F. was practically clear and normal. Similarly in meningococcal meningitis very early in the disease before the exudate has assumed the polymorphonuclear character one may be able to obtain meningococci on culture after a preliminary incubation of the fluid for about 10 hours. B. Typhosus and B. Influenzæ are also met with in the C.S.F.

The tubercle bacilli can be demonstrated in the smear made by carefully spreading out on a slide the cobweb coagulum. It is tiresome work but a prolonged search is often rewarded with a positive result. Another bacteriological test which I only want to mention is to test for the presence of the specific antigen in the C. S. F. in meningococcal meningitis. This gives a precipitation test with the specific antiserum.

Wassermann Reaction:—Upto now we have considered the presumptive evidences for the diagnosis of cerebro-spinal syphilis. Increase in globulin or lymphocytes through a result of syphilitic infection are not solely due to syphilis and therefore we must correlate the findings with some other definite test. Wassermann Reaction as applied to the C.S.F. as an evidence of syphilitic infection is more specific than any other test. Syphilitic infection of the central nervous system causes the elaboration of the specific reacting substance which can be demonstrated by this test. The value of this test is particularly seen in those cases of neurosyphilis which cause no demonstrable rise in the C.S.F. globulin or cells. A positive W.R. is the only evidence of the disease. The W.R. is positive in 90% cases of G.P.I., 70% in tabes dorsalis, and in 50% cases of meningo-vascular syphilis.

The precipitation test as applied to the C. S. F. is not quite so specific. In the first place the reacting substance is not present in sufficient quantity in the fluid to cause a precipitate unless the fluid is concentrated. Ammonium sulphate used for the concentration of the globulin cannot be washed off completely, and the presence of this additional electrolyte may give rise to a wrongly positive result. W.R. as applied to the C.S.F. is, therefore, the method of choice in the diagnosis of neurosyphilis.

Colloidal Gold Test.—Though some authorities claim a specific value to what is known as the colloidal gold curve, it is by no means a specific test because the specific antibody has nothing whatever to do with the results obtained in this test.

Several colloidal solutions are used e.g. the colloidal benzoin and the colloidal gum solution and the principle involved is that globulin has a precipitating action on a colloidal suspension while the albumin has a protecting action and therefore prevents precipitation by globulin. Gold is used in these tests because a colloidal solution of gold has a distinct colour and the different degrees of precipitation are indicated by different colours. The degree of precipitation as shown by a distinct colour is indicated by a figure and these figures for the different dilutions of the C.S.F. when written down can be plotted in the form of a curve. This is shown as follows :

Colourless complete precipitation.....	5
Light blue.....	4
Deep blue.....	3
Purple.....	2
Bluish red.....	1
No change from the normal red of the colloidal solution.....	0

The principle of the test is that serial dilutions of the fluid due to the difference in the concentration of the albumin and the globulin in different diseases give rise to different types of curves. In cases of General Paralysis an excess of globulin causes immediate precipitation and this type or the I zone curve is also known as the paretic curve. This may be represented as 5555542100. In meningitis on the other hand the albumin concentration prevents the globulin from precipitating the colloid till such time as causes the albumin to be so much diluted as not to be able to exert its inhibiting action. This is the III zone or the meningitic type of curve. In tabes or meningo-vascular syphilis the albumin and the globulin are obtained in almost the same concentration. One therefore gets what is known as the II or the mid zone curve. It may be represented as 0014552100 and is known as the luetic type of curve. Unfortunately these types of curves have been definitely named as Paretic, Luetic, and Meningitic as if they were diagnostic significance. It is sufficient if we realise that the type of curve depends on the relative proportion of albumin

and globulin. Any one who has carried out these tests on a large scale can hardly swear as to their definite diagnostic significance. Any type of curve may be obtained in any type of C.N.S. involvement syphilitic or otherwise. The following observation should be a good guide: A negative W.R. both in blood and C.S.F. and a paretic curve indicates disseminated sclerosis. Persistence of a paretic type of curve in spite of antisyphilitic treatment is very strongly in favour of G.P.I.

Some authorities consider that the paretic type of curve with a positive W.R. is definite evidence for General Paralysis and they maintain that it is not only the quantitative increase of globulin gives the paretic response but also some sort of qualitative modification of the globulin in the syphilitic serum.

FUNCTIONAL BLEEDING OF UTERUS.

BY DR. B. L. KAPUR, M.D. (BERLIN).

Hon. Med. Superintendent, Lahore Maternity Hospital, Lahore.

Bleeding is one of the common complaints of women. In order to understand the pathology of the uterine haemorrhages allow me to bring back to your memory the process of menstruation. Menstruation depends upon :—

1. Activity of anterior pituitary gland.
2. Ovulation.
3. Corpus luteum formation.
4. Reaction of the endometrium.

Menstruation usually begins near puberty when the thymus gland involutes and the anterior pituitary gland takes up its function.

The anterior pituitary gland apart from its multifarious functions secretes prolactin A and B. According to Bridane, H. Hingstein and B Hingstein prolactin A stimulates the follicle maturation and secondly sensitises the follicle to the luteinising property of prolactin B. The latter is the corpus luteum activator.

Amongst the many degenerating follicle a single gets by and reaches its maturity. Now the Graafian follicle ruptures and the ovum and the follicle fluid is discharged.

The rupture of the Graafian follicle is followed by varying amount of haemorrhage. Further it comes to rapid proliferation of lutein cells, containing a yellow pigment. These cells take up the corpus luteum formation.

The uterus undergoes some changes side by side.

With the growth of the follicle the cells of the endometrium become hypertrophied and the glands become bigger in size and more tortuous. But the stroma remains compact.

After the bursting of the Graafian follicle the mucous membrane enters into a secretory stage, and becomes higher. The glands become cork screwed. The mucous membrane of the glands becomes lower and secretes mucous. The other cells of stroma become large and edematous. In the premenstrual stage some of the women begin to complain of leucorrhœa. If no pregnancy takes place it comes to bleeding after the end of the secretory stage.

The menses come off because either :—

1. Corpus luteal activity ceases.
- or 2. There is lowering of estrin cycle.
- or 3. There is a stimulation of the endometrium by some substances coming from the posterior pituitary.

The menstrual blood does not coagulate on account of its absence from fibrinogen and thrombogen. It is rich in tryptic ferments.

The upper layer of the endometrium scrumbles away in large and small particles.

PATHOLOGY OF BLEEDINGS.

The bleeding can be functional or organic. I would describe functional bleeding only. The causes lie in the following :—

I. Atresia.—Follicle atresia in 10 of my cases I have come across women having bleeding on every 15th day. It lasted for 6-7 days. In such cases the follicle comes to an atresia, instead of having a proper ovulation. The result is a retrogression of the mucus membrane and thus the bleeding parts.

II. Follicle Persistence.—The follicle may persist and it do not rupture. It would come to a metropathia hæmorrhagia. The mucous membrane becomes unfit to stand the continuous stimulation of the estrogenic substances. So a degeneration of the membrane comes off and it results into continuous bleeding.

III. Follicle Cyst may be formed and prolonged bleeding may be the result.

IV. Corpus Luteum Persistence.—The corpus luteum may not retard and lutenising substances may thus act constantly on the mucous membrane. The hypertrophy of the mucous membrane would persist and it would come to bleeding on account of necrosis of the mucous membrane. This bleeding stops at times and the patient complains of severe leucorrhœa. The mammas also become heavier.

V. Sometimes during the hysterectomy one comes across the corpus luteum cyst. The symptoms are just the same as those of corpus luteum persistence.

PATHOLOGY OF THE METROPATHIA HÆMORRHAGIA.

The endothel cells are connected with the stroma cells through the so-called protoplasmic bricks which connect them (endothel and

the stroma) in such a way that they make one biological and anatomical unit.

Through the cyclic changes the endothel and stroma cells swell up. The mucous membrane becomes rich in blood and thus it comes to bleeding. Further the changes in the tonus of capillaries play a role in giving rise to hæmorrhages.

The endocrinological troubles play a role in any time of life. But they are more prevalent during menarche and menopause.

VI. Syphilis :—In the middle Europe literature, syphilis plays a great role. In secondary stage it manifests itself in :—

- (a) Syphilitic plaques in the uterine mucous membrane.
- (b) Endometritis with syphilitic changes of stroma.
- (c) Follicle persistence.

1. Tertiary stage manifest itself in the following :—

1. Hypertrophic endometritis.
2. Ulcerative and inflammatory processes.
3. Tertiary sclerosis of vessels.
4. Small cystic degeneration.
5. Constitutional diseases.

VII. Blood Dyscrasia :—Faulty blood coagulation causes hæmorrhage particularly the oozing type.

In chlorosis and anæmia the permeability of endothel cells increases and it comes to prolonged bleeding.

DIAGNOSIS OF FUNCTIONAL BLEEDINGS.

The bleeding cases are not to be treated by ordinary calcium. But they should be properly diagnosed. It is no more necessary for them to undergo a curettage under chloroform etc. The biopsy curette is enough to scrape a piece of endometrium for examination. It is done ordinarily in consultation chambers, the examination is taken up in the ordinary laboratory of blood and urine. It gives us the differential diagnosis between follicular or corpus luteum persistence.

Blood count is very essential and much more importance should be given to the count of blood platelets and the examination of the coagulation time. Laboratory tests for thrombin and calcium give the necessary data but if both calcium and thrombin are normal in serum then there must be fibrinogen deficiency which cannot be tested in the laboratory.

Wassermann examinations are also important but syphilis is not so common in India as in middle Europe. Hystero-Salpingraphy should be done in all cases.

Treatment :—The general vitality of the persons should be raised. Anaemia and chlorosis can be treated by administration of iron or liver preparations. The food taken should be rich. It must contain vitamins, especially C.

In severe bleeding cases Kongored is very well indicated. It raises the number of the blood platelets, the coagulation time is shortened and it makes and the reticuloendothelial system active. The capillaries are compressed on account of the assimilation of perithel cells. Calcium would also help in stopping the bleeding but it should be given in very high doses intravenously. Small doses per mouth are absolutely useless. Some of the authors prescribe digitalis but I have no experience of this substance. Personally I find no indication of this drug.

Bromides seem to find its place amongst popular medicines for bleeding. I have never been able to understand what action this drug would have at all if prescribed. Do the colleagues want a psychological action? If so, then I can justify them.

Regarding the endocrine therapy, I suggest in cases of ovulatory disturbances high doses of corpus luteum, 5 mg. per injection every day intramuscularly. Small doses are useless. In cases of corpus luteum disturbances progynon should be administered. One would do well to use progynon forte thrice weekly. There is no guarantee of cure with this treatment. I have succeeded only in 50 per cent. of cases.

In cases where the diagnosis with biopsy curette is not possible. Testivoron forte should be used. The action lies in the neutralization of the female hormones. Theoretically the women can become sterile. But it does not so happen. I succeed in stopping the bleedings in twelve out of twenty-five cases.

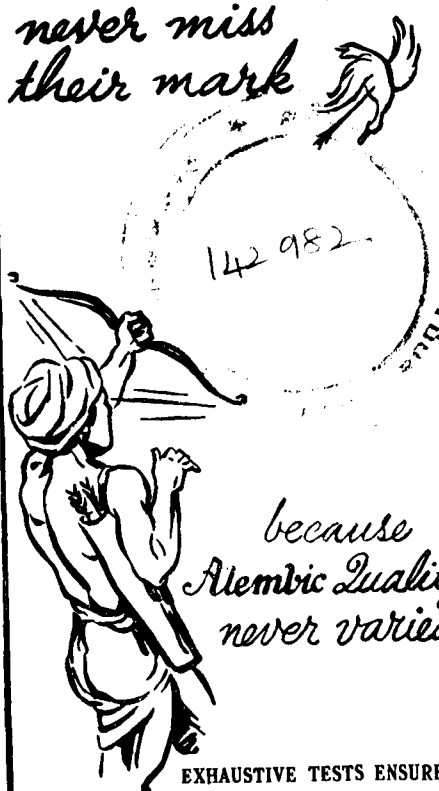
The persistent follicle is also treated by passing a needle attached to a syringe, through the vagina into the ovary. I have successfully treated two such cases.

In the modern literature Diathermy has been suggested. I have tried it in many cases without any success.

X-ray and radium do lot of good. But they cannot be applied repeatedly. There are cases where the bleeding starts after one or two applications.

The cases which remain refractory to the above treatment must undergo a vaginal hysterectomy.

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THE MANAGEMENT OF DIABETES

PHILIP CORR, M.D.

Riverside, Calif.

Perhaps the best way to discuss the management of diabetes is to follow the steps taken in handling an average case of diabetes mellitus.

An old recipe for making rabbit pie starts out with the admonition to "first catch your rabbit." In this instance we must first get our case of diabetes by being sure of our diagnosis. This is particularly important because of the practicality of the dictum, "once a diabetic always a diabetic."

DIAGNOSIS.

Usually the diagnosis of diabetes mellitus is first suggested by the finding of sugar in the urine. Unless this is associated with cardinal signs of diabetes such as weight loss in spite of heavy eating, excessive urination with marked thirst, and persistent, marked glycosuria, possibly with signs of acidosis, the diagnosis should not be made without finding a high fasting blood sugar of at least 120 mg. per cc. In case of doubt the question may rarely need to be settled by a glucose tolerance test. Glycosuria alone is not sufficient cause for calling a patient a diabetic. Renal diabetes, physiologic glycosuria such as from fright, reduction of the copper sulphate solutions by ingested materials such as aspirin, are common enough to be a real source of confusion. One not infrequently finds people on diabetic diets for years where it is probable that diabetes never existed.

It is most important to be sure of this first step in the management of diabetes *i. e.*, making sure of the diagnosis.

The next step is to determine the severity of the diabetes. Is our patient in a state of acidosis requiring immediate, most careful management or can his case be handled less strictly? If there is acidosis as evidenced by the presence of considerable diacetic acid the patient should be treated as a case of impending coma. Gerhard's ferric chloride test for diacetic acid should be utilized whenever a moderate or large amount of sugar is found in the urine. The matter of treatment of coma will be considered later. For the present we shall assume an uncomplicated case of moderate to mild severity. This is by far the most common type encountered.

With this average diabetic before us we explain to him the advisability of following the rules we are about to suggest, informing him briefly of the nature of diabetes as well as its course, assuring him that his understanding and co-operation will pay him large dividends. They are invariably advised to get and study some handbook on diabetes to supplement the office discussion.

DIET.

Next one outlines the diet. With or without insulin no diabetic can afford to be uninformed about this basic part of the treatment of his diabetes. Generally speaking, the important thing to emphasize is that the patient should eat approximately the same type and quantity of food day after day until he learns to substitute other foods later. Instead of following some set diet it has been my custom to insist on the patients taking certain basic foods or adequate substitutes and then adding what they wish, avoiding the foods rich in carbohydrates. For instance, they should eat daily one good serving of lean meat, one or two eggs, two or three glasses of milk, three fresh or water-packed fruits, and a selection of vegetables as desired, usually avoiding or limiting potatoes and other vegetables above the 10 per cent. carbohydrate class. Substitutes can be given for each of these important food if desired. One slice of bread of any kind is usually allowed with each meal. Butter, mayonnaise and bacon are used to help increase calories. In general alcoholic and soft drinks are avoided, but tea, coffee and clear or vegetable soups are allowed.

This is a fairly satisfactory and easy diet to prescribe or to follow. It aims to provide adequate protein, a moderate amount of carbohydrate and sufficient minerals and vitamins. Greater care can be exercised in reducing the carbohydrate content by more careful consideration of the fruits, vegetables and bread intake, where such care will allow a patient to get along without insulin. Usually the mild cases can get along without insulin with the above-mentioned diet or the moderately severe diabetics will require insulin in spite of a more stringent diet. Caloric requirement can be adjusted by fat intake. One aims to keep diabetics a trifle underweight.

URINALYSES.

The important step following the handling of the diet is to teach the patient to examine his own urine and bring in a written record for the doctor to observe his progress. Apart from hospitalization of the patient there is no other way to satisfactorily control the patient's diabetes. He must be taught some simple test such as Benedict's qualitative test. It is important that he be provided with proper solutions and be properly instructed about testing for sugar in the urine. For economy's sake 2.5 cc. of Benedict's solution with 4 drops of urine can be used instead of the usually prescribed 5 cc. with 8 drops of urine. The tube should be scratched with a file mark to prevent too much guessing. After 5 minutes of a water beaker or 1 minute boiling over the flame, the tube should be shaken and the color reaction recorded as blue, green, yellow, red, etc.

The tests should be made four times daily; before breakfast and about 3 hours after each meal until the diabetes is well under control. Then one test daily with the four tests being done once a week will usually suffice. Whenever a new food is tried or when

changes in insulin dosage are made or whenever illness, shock or injury is present four tests daily should be recorded. With this record it is easy to advise the patient about the handling of his case. Without adequate records the doctor can hardly advise the patient intelligently. The four tests can be done at one time during the day from specimens saved for the purpose.

The following is an example of the type of record to be kept.

	7 a.m.	Ins.	10 a.m.	Ins.	3 p.m.	Ins.	9 p.m.	Remarks.
5-4-39	Red	0	Red	0	Red	0	Red	
5-5-39	Yellow	0	Red	0	Red	0	Yellow	
5-6-39	Yellow	0	Yellow	0	Yellow	0	Yellow	
5-7-39	Green	0	Yellow	0	Green	0	Green	
5-8-39	Blue	0	Green	0	Blue	0	Blue	
5-9-39								

Generally, if the urine is kept sugar free the great majority of the time the patient's diabetes is for all practical purposes controlled. If the glycosuria is not controlled diacetic acid tests and blood sugar levels help to estimate the situation more correctly. When the urine reports are not available blood sugar reports become increasingly valuable. In the juvenile types of diabetes one tries to keep the blood sugar level approximately normal. In the older group one tries to keep the blood sugar level below 150 mg. of glucose per 100 cc. of blood. But practically speaking, with co-operation with urinalyses, blood sugar levels are unimportant. Just what, if any, harm a high blood sugar without glycosuria does is not definitely known.

INSULIN.

After watching our patient along for a week or so and noting progress in signs and symptoms we may discover that we cannot control his diabetes satisfactorily on diet alone. Insulin is advised. Generally one uses protamine zinc insulin because it is a long lasting insulin requiring only one injection a day. This is usually given before breakfast, starting with 10 units of U 40 daily if the diet has nearly but not satisfactorily controlled the diabetes. If the urine test is not normal within a few days one increases the insulin dosage by perhaps two units daily until the glycosuria is controlled. If the glycosuria is controlled consistently for a few days one reduces the dose of the protamine zinc insulin to a point where one occasionally has some slight reduction of the Benedicts solution. In this way one avoids hypoglycemic reactions, which, while less common with protamine zinc insulin, are more severe.

With the chart of the urinalysis results one can tell where if any place that the patient is "spilling over." and reduce the food intake for the preceding meal, e.g., if the 3.00 p.m. specimen always shows marked reduction of the copper sulphate solution the carbohydrate intake for the noon dose should be reduced and added to some other meal or eaten at night.

Such "juggling" will usually control the situation. Occasionally it is necessary to give supplementary old or regular insulin at appropriate times in the more difficult cases. It must be remembered that the old insulin has its maximum effect from 2 to 4 hours after administration, while protamine zinc insulin has its maximum activity from 12 to 24 hours after administration. In fact its action is so prolonged it has a cumulative effect like that of digitalis, which means that a given daily dose of this long lasting insulin has its maximum cumulative effect several days or a week after it is given.

Hypoglycemic reactions from protamine zinc insulin occur usually in the early morning and consist mainly in drowsiness, or headaches, or numbness and tingling of the fingers and mouth, or nausea or vomiting. Rarely paralysis and coma develop. Hypoglycemic reactions from the unmodified, old, or regular insulin occur usually within a few hours after injection of the insulin and consist in trembling, weakness, sweating, mental confusion, drowsiness and in severe cases convulsions and coma. The treatment for both is providing adequate amounts of sugar, recalling that the sugar intake in the case of protamine zinc insulin cases will have to be repeated over a period of several hours as the excessive dose of insulin is still being absorbed.

An injection of 0.5 cc. of adrenalin will often hasten recovery by liberating glycogen from the liver. Most hypoglycemic reactions are recovered from spontaneously.

REACTIONS.

Coma must be differentiated from a hypoglycemic reaction. Without glycosuria and diacetic acid in the urine there is no coma. The matter is serious enough so that estimations of blood sugar and carbon dioxide combining power of the blood should be utilized where possible. Diabetic coma is a major medical emergency. It means usually that someone has blundered. The treatment depends chiefly on the degree of acidosis. With acidosis evidenced by a positive diacetic acid test plus glycosuria insulin therapy is required. With severe acidosis and impending coma absolute bed rest is insisted upon and a minimal dose of at least 50 units of the old insulin, supplemented with an injection of 50 units of protamine zinc insulin is given. Fluids are forced by whatever route necessary to get in 3000 to 4000 cc. in 24 hours, as these patients are always dehydrated. The patient is kept warm. A warm enema is usually given. Urinalyses are made every 2 hours, catheterizing the patient if necessary. Ten to 25 units of unmodified insulin are given every 2 hours, depending on the amount of glycosuria and diacetic acid present. As the patient improves the intervals for testing the urine are lengthened and the insulin dosage decreased accordingly. At least 100 grams of sugar are given in divided doses during the first and subsequent 24-hour periods in the form of orange juice or gingerale

or intravenous glucose. Soft diet is substituted when the patient can eat, and soon he is returned to his regular diet. After a coma the patient should be kept in bed for a week or two.

SURGERY.

If a diabetic requires surgery it is to his advantage, if the operation is an elective one, to have his diabetes well controlled before surgery. If it is an emergency his diabetes can be controlled by frequent urinalyses as described above, with a glucose intake of at least 100 grams daily in divided doses covered by the required amounts of insulin. It is preferable not to use ether, as it depletes the glycogen content of the liver and increases the blood sugar level. It should be remembered that acidosis may simulate an acute appendix with abdominal pain, nausea and vomiting and leucocytosis. In any event it is well to control acidosis in a patient about to have surgery, in order to allow for a more normal risk.

Diabetics who become ill and cannot eat should follow a liquid diet or orange juice and milk so that their carbohydrate intake is assured. They should be particularly careful about having their urinalyses made during these periods so that the insulin intake can be adjusted accordingly.

The pregnant mother is handled in the same way as a normal person. The new-born infant is generally hypoglycemic, and in addition to giving it injections of glucose for the first few days a short birth should be provided so that glucose therapy will not be delayed.

The elderly diabetic patient should be instructed in the care of the feet. Uncontrolled diabetics develop arteriosclerosis prematurely. Generally the feet are relatively insensitive and with a poor blood supply. Healing of injuries or infections in these extremities is difficult and often a serious matter. Gangrene of the foot is one of the commonest complications of diabetes due to the arteriosclerotic factor. Peripheral neuritis is not uncommon and may be largely due to vitamin B deficiency.

SUMMARY.

The important points in the handling of a proven case of diabetes are:

1. To have some standard adequate diet to which the patient adheres.
2. To have a simple record of the content of sugar in the urine.
3. The glycosuria should be controlled by carefully adjusting the dosage of one type of insulin or another when necessary. This adjustment is particularly essential in periods of illness and shock. It is most important to recognize acidosis and coma, and treat the case vigorously.
4. The care of the feet is especially important in elderly diabetics as foot trouble is a major complication.

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THE YOUNG MAN ENTERS THE MEDICAL PROFESSION.

The young man after a strenuous course of medical studies, blossoms out into a full fledged doctor, and sees the whole world staring at him in the face. His responsibilities begin in all seriousness. He does a year or two as a Houseman in one of the hospitals, and at the end of it enters life and stands at the cross-roads, not knowing what to do. One thing he is sure of, and that is that he should henceforth earn his own bread. Just at the present time emergency commissions in the I. M. S. are open to him, and nearly every one who applies for a commission gets it. This will undoubtedly be a good experience, but not quite suitable for every one, for obvious reasons.

Service under the Government is very difficult to obtain now a days for the ordinary individual, unless he traverses numerous zig-zag passages over hills and down dales, passing over various obstacles put in his way, and finally he attains the seemingly unattainable after the expenditure of all his physical and mental energy. But once it is attained, it carries with it everything that one can wish for—security of tenure, a comfortable and contented living, with a pension attached at the end of it. It is only very few people who can aspire to this, and fewer still who can come out successful.

The much talked of honorary medical service has been boosted from housetops as one that will afford plenty of clinical experience to the young medical man while at the same time saving some money for the Government. It really does neither. It is too hard on a young doctor to expect him to work in a hospital for several hours a day for nothing. He has already spent a great deal of money in acquiring knowledge of the healing art and at the end of it he is perfectly entitled to earn a few rupees by honest work. There is no fun or pleasure in extracting labour from a person without adequately recompensing him. It is beyond ordinary understanding why, of all the professions in the world, the medical profession alone should run on a honorary basis.

In this connection it will not be out of place to commend the restrictions, though belated and half-hearted, placed on the private practice indulged in by medical men in Government service. These lucky individuals have been competing with the independent medical practitioners on very unfair terms by virtue of all the facilities of Government hospitals being easily available to the former. They examine life insurance cases and run nursing homes, laboratories, and pharmacies in the name of their dependants. They open abscesses for a song, and for the same song get other things done for the patient. The public are enamoured of them for all this, and vest the service men with an artificial glamour, so that the independent practitioner is subjected to unfair and unequal discrimination.

The independent medical practitioner, with his consulting rooms in a busy locality, has to face all these heavy odds operating against him. A microscopic few succeed and make their mark. The vast majority just manage to carry on as best as they could. The journey is long, the prizes are few, and the struggle is arduous. But still, it has to be faced and is being boldly faced by the majority of medical men. It has been truly said that "so far as material things are concerned, no profession, trade, craft, science, or art repays so small a percentage for the time, money, health, strength in youth invested as does the practice of medicine."

Among the other fields open to the budding medico are the commercial firms, municipal bodies, railways, and private clinics run by individual medical men. A few of the commercial firms employ medical men to look after the health of their staff, but these places are usually the close preserves of a few senior medical men who have already made a mark in the profession, and who are probably *persona grata* with the bosses of the firm. A junior practitioner will find it extremely difficult to break this stone wall of monopoly. Municipal and similar bodies which run public health services and special clinics for the treatment of diseases like leprosy, venereal diseases and tuberculosis will find employment for a few. The railway companies always complain that they have a huge waiting list of medical applicants, but they quietly take in a few medical men now and then, particularly if they hold "foreign qualifications," that magic word which, very often, opens doors which are perpetually closed to ordinary mortals. Clinics and nursing homes are cropping up in various parts of the country and are good training grounds for the independent practitioner. These nursing homes constitute a healthy tendency among medical men to afford to their patients a combination of constant observation and a homely atmosphere. The nursing home being usually a one-man show, the junior practitioner working therein has to tune himself to all the whims of his chief, to subdue his own opinions and feelings, to smile

whenever he is expected to smile, and, in a word, to please and satisfy his chief in all ways. In some cases, even the compounders and ward boys and other servants have to be pleased and kept in good humour, for these dignitaries very often have it in their power to give considerable trouble and worry to the junior. However these nursing homes serve a useful purpose and have come to stay.

Needless to say, the young man entering the medical profession should develop the correct attitude towards his patients and should impress them with his clinical skill and self-confidence. Specialisation in any branch of medical science comes on later, and his experience as a general practitioner will surely stand him in good stead in his role as a specialist. In any case, the well being of his patients should be his aim and he should do his best to ensure this.



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Extracts.

A NEW METHOD OF INCISION FOR THE TREATMENT OF WHITLOW.

A new surgical intervention for use in the treatment of closed space infection of the distal phalanx of the finger is recommended and described by J. J. Weiner (*Annals of Surgery*, January 1940, 111, 126) The advantages of this method over the three surgical measures most usually employed, *i.e.*, the midline incision, the fish-mouth incision, and the lateral hockey-stick type of incision, are (1) it provides adequate drainage; (2) it does not leave a deep, at times disabling scar; and (3) the tactile sensation is not interfered with. The technique is as follows:—Under gas and oxygen anaesthesia detachment of the nail from the skin, the nail-bed, and matrix is carried out. An inverted U-shaped incision is then made close to the tuft of the bone and part of the distal phalanx shaft; the pulp is retracted, the closed space entered, and the abscess is exposed lying anterior to the distal phalanx. Careful examination of the mushroom portion of the bone for osteomyelitis is carried out and if any signs of softening are present the tuft is removed. The abscess cavity is emptied, any necrotic tissue cut away, and the cavity is packed with iodoform gauze. Wet dressings of boracic acid are applied, and the patient is told to soak the finger in hot boracic acid solution for twenty minutes every two hours. After forty-eight hours the packing is removed. Several cases are described in which the method was used with complete success. In one case local infiltration with 1 per cent, novocain was used instead of gas and oxygen. X-ray examinations were made before and after the operation, and in each instance the later film showed regeneration of the nail, healing of the wound and, in one case in which destruction of the mushroom portion of the distal phalanx was present complete regeneration of the bone.

ALLEVIATION OF PAIN IN LABOUR.

Wm. P. Sadler discusses the relative merits of some of the various methods of *North-West Medicine* for February, 1938.

The ideal method is one which is safe for both mother and child, completely alleviates pain, does not render the patient unconscious and interferes in no way with the normal mechanism or conduct of labour. Although the literature is replete with a variety of methods which approach this ideal, none fulfil it or at present approximate it.

I wish to emphasize that the conduct of each labour is entirely an individual matter as regards alleviation of pain. The practitioner or obstetrician can not approach his problem with a precise formula and apply it to all patients. There are too many variables to be considered. All of you have had the occasional patient, whose pain threshold is so low that she has a virtually painless labour without help from amnesics, analgesics or anaesthesia.

The parity of the patient, the stage of labour in which she is first seen, the condition of the cervix, degree of effacement and dilatation and character of the pains are other variables which demand the utmost prudence and finesse in judgment.

We all know the deleterious effect upon the foetus, when morphia alone, morphine and scopolamine, heroin and pantopon are administered within two to four hours of its birth. Many of these babies are apnaeic, while a smaller number are so deeply asphyxiated that resuscitation is exceedingly difficult and in some instances impossible.

The past five years has brought the widespread use of various barbituric acid derivatives such as sodium amytal, nembutal, ortal, allonal, seconal and others. The barbiturates, although extremely valuable, when used alone do not approach our ideal. They apparently have no ill effect on mother or child in therapeutic doses. However, many have exceeded this limit, attempting to obtain results, with deleterious effect upon the babies as shown by Bundesen. In the larger doses many patients exhibit marked restlessness to a point where restraint is necessary. This obtains with twilight, too. Obviously such excitants are contraindicated in labouring cardinals, as extreme restlessness adds additional load upon the heart.

Various surveys of methods used throughout the country show that practically everywhere a combination of drugs are used to produce amnesia and analgesia during the first stage and part of the second stage, cut at the actual delivery some form of inhalation anaesthesia is used.

Gwathmey has eliminated the hypodermic magnesium sulphate from his method. Perhaps at present the following method is most generally used. Upon admission to the hospital before the pains become too severe, if the cervix is practically effaced and dilated, 1 to 2 cm. in primipara and 2 to 3 cm. in multipara, $4\frac{1}{2}$ to $7\frac{1}{2}$ grains of nembutal (pentobarbital sodium) is given by mouth in an initial dose. At the same time or within one-half to one hour $\frac{1}{8}$ th to $\frac{1}{6}$ th gr. of morphine and $\frac{1}{150}$ to $\frac{1}{200}$ gr. of scopolamine are given by hypodermic. Many omit the morphine and give scopolamine alone.

The effect is rapid and the patient usually sleeps between pains and arouses during contractions. If the labour lasts longer than five or six hours and the patient becomes too restless, $1\frac{1}{2}$ gr. of

nembutal are given but the scopalamine is not repeated. During parturition nitrous oxide, ethylene or ether is given.

Recently Kliman and Lazard reported a series of cases in which a preliminary dose of calcium bromide, 30 gr., in palatable form is given, followed in thirty minutes with nembutal, 4½ gr., and, if the cervix is dilated, 4 cm. or better within fifteen minutes, 1/200 gr. of scopalamine is given.

They point out that the sedation from the bromides allays fear and causes a more effective action from the pentobarbital sodium, enabling them to use smaller doses. Their patients have shown no extreme restlessness, have not required extra nursing care and there are fewer postpartum catheterizations, due to fewer operative deliveries and the diuretic action of the calcium bromide. It seems to me that their plan has considerable merit, although I have not had an opportunity to evaluate it on a series of my own cases to date.

VACCINE TREATMENT OF CHANCROID ASSOCIATED WITH INGUINAL BUBOES.

M. Andersen. *Ugesk. f. læger. Copenhagen.*

Sept. 21, 1939, 101: 1107.

Five patients (4 men and 1 woman) with chancroid and associated inguinal lymph node involvement were treated by means of dmelcos vaccine injections. These patients had been hospitalized from 3 to 6 weeks after injection and about 12 to 20 days after the onset of lymph node involvement. Four of the patients had unilateral buboes the size of walnuts to that of hens' eggs which were red and fluctuant, and the fifth patient had bilateral buboes, the left one having been incised before he was seen by the author. Treatment consisted of the injection of increasing doses of dmelcos vaccine every 2 to 3 days, the dosage being increased from 225 million to 675 million bacteria per injection. In 2 patients the buboes disappeared after 4 injections given in the course of 7 to 10 days; in 2 others this result was achieved with 5 injections given during 9 to 10 days. The chancreoids were healed in about the same length of time. The patient with bilateral buboes required 6 injections given over a period of 13 days for cure, but the chancreoids did not heal until a month after treatment had been started. The temperatures following the injections were from 43° to 41°C. except in the last mentioned patient in whom they did not exceed 39.30°C.

The author attributes the slower healing of the chancreoids compared to that of the bubo to the fact the Ducrecy bacilli in the

bubo are in more intimate contact with the circulating antibodies than are the Ducrecy bacilli in the chancroid which contains a mixed infection.

TREATMENT OF DEAFNESS WITH PROSTIGMINE.

T. C. Davis and J. C. Rommel (*Archives of Otolaryngology*, 29: 75', May, 1939) report the treatment of deafness with prostigmine; the best results were obtained when the 1:2000 solution of prostigmine methylsulphate was used by hypodermic injection. Injections of 1 c. c. each were given at weekly and at three day intervals, usually the latter. The oral administration of prostigmine tablets was tried, but had no definite effect on the hearing. Prostigmine was used in 28 cases of acute blocking of the Eustachian tube with tinnitus aurium and deafness. Most of these patients were entirely relieved of symptoms and normal hearing was restored by five injections. Catheterization of the Eustachian tube and massage was carried out in all but two of these cases. In these two cases, in which the condition was of one week's duration: all tinnitus disappeared after three and four injections of prostigmine respectively. Prostigmine has also been employed in 24 cases of chronic deafness and tinnitus; in most of these cases hearing was definitely improved and tinnitus completely or greatly relieved. In chronic cases treatment should be continued "indefinitely" the authors believe, as progress may be slow. In some of the cases treated improvement was finally obtained by persevering with the treatment "when hope seemed to have fled." In chronic cases such conditions as sinusitis, Eustachian tubal catarrh and nasal obstruction must be treated in order to prevent relapses. Prostigmine was not given in sufficiently large doses to have toxic effects; untoward symptoms occurred in only two patients (both women) with hypertrophy of the thyroid: and the drug was discontinued in these cases.

OXALIC ACID TO CHECK BLEEDING.

The discovery that oxalic acid makes possible the rapid coagulation of the blood was announced and demonstrated at the meeting of the Federation of American Societies for Experimental Biology. The report was given by Dr. A. Steinberg and Dr. W. R. Brown of the research foundation of the Kensington Hospital for women in Philadelphia. Applied clinically in several

hospitals, the oxalic acid treatment was reported successful in almost 1,000 cases of unchecked bleeding resulting from a variety of causes, in which all formerly known means had proved of no avail. With no exception, it was stated, the intravenous injection of three milligrams of oxalic acid, dissolved in distilled water, stopped the hæmorrhages in periods of five minutes down to as low as forty-five seconds.

The clinical cases included six cases of hæmophilia. The usual clotting time in these cases was from 30 minutes to 2 hours. The injections of oxalic acid reduced this time to 5 minutes, which is about the usual clotting period for normal persons. The treatment was applied "with gratifying results" to a wide variety of cases of excessive bleeding, including post-operative post-partum and uterine hæmorrhages, hæmatemesis, bleeding gastric ulcers, jaundice, hæmoptysis, hæmaturia, epistaxis, melena neonatorum and other types of hæmorrhages and hæmorrhagic dyscrasia. The normal human blood contains 5.5 to 7.5 milligrams of oxalic acid per 100 cubic centimetres.

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The competitor must be (i) a duly qualified member of the Medical Profession holding a degree and diplomas from Indian and other Universities created by statute, or (ii) a duly qualified member of the Medical Profession holding the diploma of Membership of College of Physicians and Surgeons of Bombay.

The thesis must be sent in six clear typed copies so as to reach the Honorary Secretaries, Bombay Medical Union, Blavatsky Lodge Building, French Bridge, Chowpatty, Bombay, 7, on or before the 31st December 1940.

The thesis should be designated by a motto instead of the writer's name and should be accompanied by a sealed cover containing the name of the writer and his Post-Office Address.

The name of the Prize, the year of competition, the subject of the thesis, and the writer's motto should be superscribed on the cover.

No study or essay that has been published in the medical press or elsewhere will be considered eligible for the Prize, and no contribution offered in one year will be accepted in any subsequent year unless it includes evidence of further work.

The accepted thesis shall be the property of the Bombay Medical Union.

All other theses shall be returned if not accepted provided the return postage expenses are paid in advance by the writer.

In the award of the Prize to the successful candidate, the decision of the Committee shall be final.

SORAB J. POPAT, M.B., B.S.

K. S. BHARUCHA, M.B., B.S.

Hon. Secretaries, Bombay Medical Union.

THE DR. SIR BHALCHANDRA KRISHNA KT., MEMORIAL
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CIRCULAR

Dear Sir,

At a meeting of the Subscribers of Sir Bhalchandra Krishna Kt., Memorial Fund held on the 11th July 1924 the following Resolution was adopted:—

"That from the funds collected to perpetuate the memory of the late Sir Bhalchandra Krishna Kt., a Memorial Prize Medal be founded to be awarded every year on the anniversary of his death to a member of the Medical Profession * who submits a thesis or delivers a lecture on any medical subject before a Meeting of the Medical Profession to be held under the auspices of the Bombay Medical Union, preference to be given to one who submits any original or research work especially with reference to Indigenous Medicine on Western lines."

In consonance with the above Resolution, members of the profession are invited to submit a thesis or a paper by the 15th of March 1941 to the undersigned for submission to a Selection Committee for making the above award.

The thesis or paper shall have to be read by the prizeman on the day of the award at a Meeting of the Profession to be held in accordance with the above Resolutions.

Yours truly,

M. D. D. GILDER,
S. P. KAPADIA,
R. D. MODY,
V. G. RELE,
D. H. DUDHA,

9th September 1940. *Members of the Sir Bhalchandra Krishna Kt.,
Memorial Prize Medal Committee.*

All communications to be addressed to The Jt. Hon. Secretaries, Bombay Medical Union, Blavatsky Lodge Building, French Bridge, Chowpatty, BOMBAY, 7.

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**THE KRISHNA DISTRICT MEDICAL ASSOCIATION,
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(The Krishna District Branch of the Indian Medical Association).
The Minutes of the 16th monthly meeting of the Krishna District Branch of the Indian Medical Association held at P. W. D. Bungalow at Gudivada on the 24th August 1940. 23 Doctors were present. Tea was served and the whole party adjourned to the meeting.

The meeting was begun with Dr. K. Venugopaulrao Naidu, L.M.S., Asst. District Medical Officer, in-charge, Kistna, & President of the Association in the chair. Dr. M. V. Subbarao, L. M. P., Secretary, & Treasurer read the minutes of the last meeting.

Then the Medical meeting was conducted. Dr. K. Venugopaulrao Naidu, L. M. S., demonstrated a case of Choroiditis. Dr. Ch. Subbarao, M. B. B. S., read an interesting case of Teratoma of the ovary. Dr. M. Venkata Subbarao, read case-notes on the following :

- (1) Tuberculosis of the Tubes with extensive metastasis in the pelvic organs.
- (2) a case of ectopic gestation.
- (3) Congenital Hernia.
- (4) a case of fracture of the skull, frontal region, with protrusion of the brain.

Dr. A. Narayanarao, M. B. B. S., Medical Officer, Gudivada, Government Hospital, demonstrated a case of migrating periostitis of the tibia after an attack of enteric. Dr. S. Sreeramarao read a very interesting paper "Influence of Psychic factor in Therapeutics."

The meeting came to a close at 8 P. M. The party adjourned to Dinner which was kindly prepared and got up by Dr. A. Narayanarao, M. B. B. S., Medical Officer, Government Hospital, Gudivada.

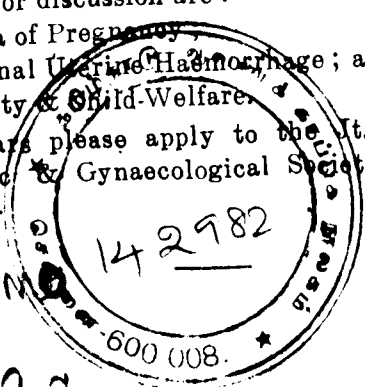
3RD ALL INDIA OBSTETRIC & GYNAECOLOGICAL CONGRESS.

The 3rd All India Obstetric & Gynaecological Congress will be held this year in Calcutta from the 27th to the 30th December 1940 both days inclusive.

The subjects for discussion are :

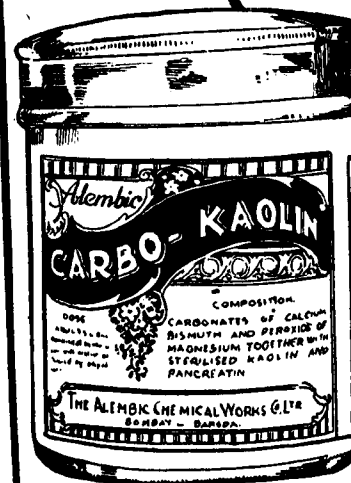
- (1) Anaemia of Pregnancy,
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