

cent. there is a definite abnormal protein content of the cerebro-spinal fluid. The Maudsley Hospital (London University) holds perhaps the widest limits of interpretation, and its figures are 0.01 to 0.025 per cent., whereas some authorities hold that normal can be definitely shown to be constantly 0.02 per cent. precisely.

In view of the statement made that 0.03 to 0.05 per cent. is practically normal, it would be interesting to know what other factors were ascertained in these cases—as, for example, the Lange curve—remembering that in disease not only is the amount of protein increased, but the proportion of albumin to globulin may be greatly decreased. Thus in tabes and meningitis, with an increase of total protein, the proportion of albumin to globulin may become 3-4 of albumin to 1 of globulin (normal 7 to 1), while in general paralysis of the insane the proportion is 1-2 to 1, and the euglobulin may show as much as a thirtyfold increase. The Lange colloidal gold reaction, being probably associated with this globulin increase, becomes more intense as the globulin proportion increases; it is this increase in the large molecules which causes the precipitate in the Lange test (euglobulin comes down).

It would also be of interest to know the chloride content (normal 0.75 to 0.73), which is reduced from 0.7 to 0.6 in meningitis, and also the sugar content (normal 0.05 to 0.09), which is reduced from 0.02 to *nil* in cerebro-spinal meningitis. Again, the pressure was not stated—for example, as recorded with Greenfield's cerebro-spinal fluid manometer (probably the most reliable)—and the number of drops which came out per second (reckoning normal as one drop per second); also the colour of the cerebro-spinal fluid. Seeing that above 6 cells per c.mm. (and 1 to 5 is normal) is always considered abnormal, I take it that "low cell count" should read "relatively low cell count for this condition."

I feel sure that this further information in these cases would be most instructive.—I am, etc.,

L.C.C. Mental Hospital, Colney
Hatch, June 27th.

ALEXANDER CANNON.

TREATMENT OF DYSMENORRHOEA

SIR,—I should like to endorse what Dr. Curtis Webb says about the treatment of dysmenorrhoea by electrotherapy in your issue of June 20th. Diathermy applied, as he suggests, from front to back through the pelvis is of undoubted benefit. When the hymen is supplanted I prefer a metal vaginal electrode and a metal belt round the waist, but what I find most successful is a course of static wave treatment. A tube-shaped metal electrode is inserted into the rectum. The static wave acts as a general tonic to the pelvic organs, exciting cellular massage and phagocytosis, relieving congestion and stasis. At the same time it has a markedly beneficial effect in certain forms of constipation.

Static wave current is contraindicated if sepsis of the genital tract is present. In such a case surgical treatment might be indicated, but in cervicitis and endocervicitis intrauterine zinc or copper ionization (15 to 20 ma. for fifteen or twenty minutes twice a week), as taught by my father, the late Dr. Samuel Sloan, followed by diathermy, seems preferable to dilatation and curettage, the results of which are often disappointing.

The combination of endocrinology with electrotherapy has given permanent relief to many women afraid of operation who, before these methods were adopted, would have been condemned to suffering and disability, year after year, for one or two days every month.—I am, etc.,

ELIZABETH SLOAN CHESSEY, M.D.

London, W.1, July 1st.

SIR,—In reply to Dr. Kennedy's very reasonable request for figures to substantiate my statements with regard to the treatment of dysmenorrhoea by exercise, I should like to point out that I can hardly make a letter, commenting on some statements by Mr. Venn Dunn, a medium for publishing the results of cases during nineteen years of practice. Nor could I, in the time available, produce such statistics. I have, however, made a rapid survey of my notes on 100 cases of dysmenorrhoea in women between the ages of 18 and 32 treated by exercise. Of these, 48 were severe cases, 43 of whom subsequently had painless periods, and 5 were relieved. Of the 52 milder cases, 49 became free from all disability and 3 were relieved. In scanning these notes I found that I had, during the same period of time, seven cases of failure. Five had slight pains only, and would not attempt the exercise. Two with severe dysmenorrhoea tried them once, but felt no better and did not continue. One of these, however, got much relief from hot baths.

I will not occupy further space with details, but I must explain that, as stated in published papers, I use the term dysmenorrhoea to include "suffering of any kind associated with the menstrual period," whether it be intense pain or merely a form of malaise. With this interpretation of the word dysmenorrhoea I presume that most women with a medium-sized general practice would see, at the least, twenty-five such cases during the year, and accumulate 100 cases in a few years. Naturally, only the severer cases find their way to the gynaecologists.

May I add, in reply to private correspondents, that I find exercises involving bending, swaying, and crouching movements the most efficacious, but they must be continued until a feeling of warm glow is produced, and, in obstinate cases, they may have to be repeated two or three times on the first day of the period for a few months.—I am, etc.,

Cheltenham, July 6th.

ALICE E. SANDERSON CLOW.

TOXICITY AND FATAL DOSE OF TURPENTINE

SIR,—In Taylor's *Principles and Practice of Medical Jurisprudence* (eighth edition, 1928, vol. ii, p. 839) I find the following:

Toxicity and Fatal Dose.—Turpentine cannot be said to be very toxic. It may irritate the stomach as a primary effect, and after absorption it has a specific influence on the kidneys, causing irritation which may lead to inflammation. We are unable to find a recorded case of fatal poisoning by turpentine in an adult, so that the fatal dose must remain with the records (*infra*) in children.

On April 3rd, 1931, an adult male, aged 39, drank six ounces of spirits of turpentine, and after doing so collapsed and died. He was an alcoholic, and was recovering from a drinking bout. On making a post-mortem dissection over four ounces of turpentine were found in his stomach. This fluid was as clear as when he drank it. The lining of the stomach was completely macerated, and lying in small pieces in the gastric cavity. The wall of the stomach felt like leather, due to the action of the turpentine.

In view of the above statement in Taylor's *Medical Jurisprudence*, and not having heard of, or come across, a fatal case of turpentine poisoning in an adult, I am recording this case as one of interest, for there is no doubt that the direct cause of this man's death was the turpentine he drank.—I am, etc.,

Bulawayo, June 2nd.

FRANCIS P. MAITLAND,
Senior Government Medical Officer,
Southern Rhodesia.