infection entangled in the meshes of the arachnoid spaces does not
drain back to the drainage opening, and these remaining foci, Nature
is unable to overcome, so that in time absorption from these areas
ushers in the period of sepsis.

From clinical observations of these cases and post-mortem examina-
tion, Day concludes that drainage of the cisterna magna hinders the
development of a diffuse meningitis over the hemispheres, prevents
the accumulation of inflammatory exudate in the subdural spaces, but
has no effect upon the accumulation of pus in the pia arachnoid, and
does not influence the progress of the infection at the base of the brain.
The accumulation was found to be present in all post-mortems,
extending from the optic commissure backwards over the crura, pons,
medulla, and the upper anterior portion of the spinal cord.

Dr. Joseph C. Beck, in the discussion on Dr. Day's paper, reported
having operated upon seven cases. Of these one recovered, but the
diagnosis was doubtful.

In closing the discussion Dr. Day stated that the operation had not
been successful in saving life. It carried the patient over the danger
of cerebral pressure, only to die from sepsis, and he did not believe
that an early operation would effect a cure.

W. G. P.

PATHOLOGY.
UNDER THE CHARGE OF
THEODORE SHENNAN, M.D., AND JAMES MILLER, M.D.

DIABETES INSIPIDUS: POLYURIA.

Since the publication of Schäfer's investigations in connection with
the pituitary, and its relation to the secretion of urine, a considerable
amount of interest has been shown, particularly on the Continent, in
the search for clinical and post-mortem evidence of the applicability
of these investigations to man. Frankl and Simmonds were the first
to obtain some proofs of a relationship. The latter (M. Simmonds,
"Secondary Tumours of the Pituitary, and their Relationship to
Diabetes Insipidus," Münch. med. Woch., 1914, vol. i. p. 180) has some
extremely interesting observations on the subject. For some time he
has been systematically examining the pituitaries in all cases under-
going post-mortem examination in the hospital in Hamburg with which
he is connected. During the course of one year, out of about 500
sections he found secondary growths in the pituitary in 10 cases. In
two of these the gland was invaded by direct spread of the new
growth, but in the others the pituitary growths were true metastases.
These metastases were discovered only on microscopic examination.
To the naked eye the gland was either not enlarged or enlarged only
to a slight degree. In one case the primary cancer was in the lung,
but in the remainder the mamma was affected. Further, it was inter-
esting to note that in all cases the part of the pituitary invaded was the posterior portion (neuro-hypophysis), the tumour eventually spreading to the pars intermedia and the stalk. The anterior lobe always remained unaffected except from pressure. In four of these cases the condition was associated with polyuria during life.

1. Female, æt. 37 years. Carcinoma mammae. Operation. Two months later permanent polyuria, up to 19 litres daily (sic) (over 4 gallons, a most extraordinary amount). Death after 4 months. Sectio:—Neuro-hypophysis and base of stalk beset with secondary cancerous growths, partes anterior and media free.

2. Boy, æt. 9 years. Development retarded from the 5th year. Marked polyuria, great thirst, extreme emaciation. Sectio:—Hæmorrhagic tumour of base of fifth ventricle, which projected into the sella turcica. Pituitary, no visible naked-eye change. Microscopically, neuro-hypophysis and stalk infiltrated with sarcomatous growth.

3. Female, æt. 44 years. Carcinoma mammae. Operation. Nine months later obstinate polyuria, up to 7 litres daily (over 12 pints). Death after 3 months. Sectio:—Neuro-hypophysis, pars intermedia, and stalk infiltrated with cancer.

4. Female, æt. 45 years. Carcinoma mammae. Operation, February 1912. In December 1912 polyuria up to 4½ litres daily (about 8½ pints). In December 1913 thirst and polyuria had disappeared. Died 8th January 1914. Sectio:—The metastases in the pituitary had destroyed the neuro-hypophysis, the pars intermedia, the stalk, and a part of the anterior lobe.

The other six cases showed similar infiltration without polyuria, so that the relationship is by no means invariable.

On the assumption that in the four first-mentioned cases there was really a relationship of cause and effect, Simmonds argues that Schäfer’s conclusions—that polyuria in disease of the pituitary is to be explained by an over-function of the organ, especially of the pars intermedia—are not supported by post-mortem data in man.

While the first two cases support Schäfer’s theory, the third, and in all likelihood the fourth, case, in which that part was destroyed, completely overturn it. Simmonds believes that Farni, van der Velder, and Römer, repeating Schäfer’s experiments, have shown that the secretion of the middle and hinder parts of the pituitary produce not an increase but a diminution of the secretion of urine, and concludes that diabetes insipidus is rather a result of a deficiency in the secretion of these parts of the pituitary. Of course he does not maintain that all cases of polyuria are due to such changes in the pituitary. Further, it is interesting to note that if the tumour in the pituitary caused polyuria in the fourth case to begin with, as it increased in size the polyuria disappeared. This (the fourth) case was encountered while Simmonds’ paper was in the press.
THE OCCURRENCE OF TUBERCLE BACILLI IN THE CIRCULATING BLOOD.

Klopstock and Seligmann (Zeitschr. f. Hygiene, 1913, Bd. lxxvii. H. 1, S. 77) review all the literature on this subject, from Weichselbaum's paper in 1884 to those appearing in 1913, and then give the results of their own investigations.

The review gives anything but conclusive results. In some hands microscopic investigations have had a completely negative result, whereas in others the positive results have been numerous or even invariable. The same is true of animal inoculations, a large number of workers reporting either wholly negative or only exceptionally positive results. Others, on the contrary, report 50 per cent. or even a still greater proportion of successful inoculations. Some of these positive results, however, have been obtained in the case of blood from healthy subjects, as well as in patients suffering from diseases the relation of which to tuberculosis is usually regarded as very distant, or even hypothetical. Klopstock and Seligmann investigated the blood of 49 cases of pulmonary phthisis in all stages of the disease. In 9 of these appearances resembling tubercle bacilli were found microscopically, but only 3 of these could satisfy all the criteria.

Further, the blood in every case was inoculated into animals, and in not a single instance was a positive result obtained. They discuss all the possible pitfalls which may lead astray the unwary in both kinds of investigation, and conclude that proof is still lacking that tubercle bacilli are present in the circulating blood in phthisical patients with sufficient frequency to furnish indications of value either for diagnosis or for prognosis.

THE OCCURRENCE OF TUBERCLE BACILLI IN THE FAEces.

Laird, Kite, and Stewart contribute a paper on this subject (Journ. of Exper. Med., 1913, vol. xxix. No. 1, p. 31). They quote the results of other authors apparently justifying the following conclusions:—Acid-fast bacilli have not often been found in the faeces of healthy persons; they have frequently been found in the stools of tuberculous individuals, and when present they are usually to be regarded as true tubercle bacilli. According to some authorities, bacilli are found in the faeces only in cases in which tubercle bacilli have been present also in the sputum. Others report their presence in the faeces not only when they have not been found in the sputum, but even when there has been no sputum to examine. Others, again, hold that the examination of the faeces should be of greater value than the examination of the sputum. The authors, after prolonged investigations, conclude that nearly all patients with tubercle bacilli in their sputum have also virulent tubercle bacilli in their faeces, as proved by animal inoculation; and further,
that very few individuals whose sputum does not contain tubercle bacilli have acid-fast bacilli in their faeces.

Detection of Anthrax Bacilli.

The demonstration of the presence of anthrax bacilli in forage, skins, hair, etc., is always rendered more difficult by the presence of other sporing bacilli, which develop equally vigorously on the ordinary cultivation media. Hans Jaenisch, realising that the anthrax bacillus grows well on a medium containing a large proportion of albumin, has been using for its separation a modified Endo's fuchsin agar, containing 10 per cent. peptone instead of the usual 1 per cent., and 4 per cent. agar instead of the usual 3 per cent. The fuchsin must be reduced and the medium must be transparent so that the plates can be searched for colonies under a low power of the microscope. After 20 to 24 hours' incubation the colonies of the saprophytic organisms are of about the same size as those of the anthrax bacillus, but the latter are thicker. The fringing processes so characteristic of the anthrax and anthracoid group are not so prominent on the modified Endo's medium, and the colonies tend to be more rounded or oval in shape. On further incubation the colouring matter tends to restrain the growth of other organisms than anthrax and anthracoid bacilli. Further, anthracoid bacilli produce more acid than the true anthrax bacillus, and, as a result, their colonies show a reddening, particularly in the centre, which distinguishes them from the true anthrax colonies, which are more of a brownish tone, like that of the medium itself. Jaenisch has tested this medium very fully and is satisfied that it is of great assistance for the purpose for which he devised it.

Banti's Disease.

In several cases of this disease A. G. Gibson (Quart. Journ. Med., January 1914) has found that if stained by the method introduced by Wheal and Chown (Journ. Path. and Bact., 1911, vol. xvi. p. 146), sections of the spleen show the presence of organisms belonging to the streptothrix group. He believes that many cases of the disease are due to invasion of the spleen by organisms of this class.

Syphilis.

Ellis and Swift (Journ. of Exper. Med., August 1913) discuss the value of frequent examinations of the cerebro-spinal fluid in cases of syphilis, and the indications such examinations afford both for treatment and for prognosis. The diagnosis of any single syphilitic disease of the central nervous system is incomplete without these examinations, and they should be repeated frequently. A negative Wassermann's reaction does not exclude disease of the central nervous system, and the authors hold the opinion that no patient should be regarded as
clear of the effects of a syphilitic infection unless his lumbar puncture fluid, as well as his blood, gives a negative Wassermann. Further, every patient whose spinal fluid contains an increased number of cells or an increased quantity of globulin, or shows a positive Wassermann, should receive vigorous anti-syphilitic treatment.

T. S.

NEW BOOKS.

*Ulcer of the Stomach.* By CHARLES BOLTON, M.D., B.Sc., F.R.C.P. Pp. 396. Illustrated. London: Edward Arnold. 1913. Price 15s. net.

All who are interested in the subject of gastric ulcer will welcome this book by one who has earned the right to speak with authority on the subject. To those unacquainted with Dr. Bolton's writings it will bring fresh light on a problem of great complexity, whilst to those who have followed his work during the past eight years it gives an admirably arranged and consecutive account of his views on the various aspects of the disease.

The first half of the book is given up to a discussion of the pathology of gastric ulcer, and from the wealth of experimental and post-mortem room material which the author has had at his command, a very complete and convincing argument in favour of the toxic origin of gastric ulcer is presented. The distinction between the acute and the chronic types of ulcer is very clearly drawn, and the characteristic multiplicity of the former type is proved beyond all cavil.

In so complete a description of the pathological changes arising from gastric ulcer it is surprising to find no description of the condition of fibromatosis of the stomach, which not infrequently results from chronic ulcer and makes diagnosis from cancer a matter of extreme difficulty.

The bibliographies at the end of the various chapters are very comprehensive and sufficiently complete; and, whilst unwavering in the defence of his own theory of the causation of gastric ulcer, the author discusses freely the various theories and views which have been advanced by others, dismissing them in a logical if somewhat summary fashion.

The illustrations with which this part of the book abounds deserve special comment. They are exclusively reproductions of photographs and micro-photographs, and represent the best that can be attained by this form of illustration.

On turning to the more purely clinical side of the work one is at once gratified to find the same scientific accuracy and particularity which distinguished the opening chapters of the book. Here, again,