subdivisions of the artery, and the more localized the area of faulty blood supply is likely to be and the smaller the defect in the field.

Many cases are not so well defined as these, but a quadrant defect more or less complete in the fields of vision is not infrequent. The defect may be only slight and partial, or it may approach towards a complete hemianopsia by implication of the adjoining vertical quadrant, or it may be irregular.

It must be admitted that the sense of sight is an extremely complicated physiological process, especially in man, while the lesions made by pathological changes are very rarely sufficiently localized to provide for a fine subdivision of physiological values of the different portions of the visual area. But we have ample data from *post-mortem* examinations to be certain on general lines that the visual field is primarily represented on the mesial surface of the occipital lobe along the calcarine fissure. Moreover, it is probable that the area of cortex above and below the fissure respectively represent the lower and upper quadrants of the field.

In Foster's case of bilateral hemianopsia there was symmetrical damage of the mesial surface of both occipital lobes, and fibres internal to and below the lateral ventricle, including the inferior longitudinal bundle, were destroyed. The apex of the cuneus and hinder end of the calcarine were left intact. In this case the central macular vision was maintained.

An important means for localizing intracranial mischief is the use of the perimeter to ascertain the condition of the visual field and its defects.

It is certain that hemianopsia may occur without being necessarily an early symptom of further brain trouble. I have seen a number of patients who with more or less defect in the visual fields have been able to do useful work apparently without discomfort, and who have remained without any other evidence of disease for many years.

The common cause in localized cases is, I expect, embolism of some twig of the calcarine artery. The onset is usually sudden, the patient has slight brain disturbance for some days, and then recovers. The obstructed area undergoes atrophy and causes the patient no discomfort except his loss of localized visual area.

But hemianopsia may be a part of a spreading lesion, the first symptom of a thrombosis which will lead to a progressive softening, or of a commencing tumour, which causes pressure upon some part of the visual cortex or radiations, or upon the optic tract. Increase in the size of the morbid growth will probably cause increased defect in the visual field, as well as more vascularization or swelling in the optic nerve.

Trephining, made safe by antiseptics, may be necessary in primary injuries, for fracture, abscesses, haemorrhage, and discharging cortical areas in epilepsy. Cysts may be relieved and old gummata removed. Cases of tumour will die if not interfered with, and though some may be malignant and too deep for removal, still others may be on the surface and more easy than might be expected, while, on the other hand, necropsy may show that operation would have saved the patient.

For the study of the blood supply to the brain structures concerned in vision, I would refer to the splendid work of Dr. Beevor.

A simple summary may here be given. The optic chiasma and nerves are supplied by the posterior communicating and the anterior cerebral arteries. The anterior choroidal artery, which ends in the choroidal plexus of the lateral ventricle, supplies the optic tract, the posterior portion of the internal capsule, especially its retrolenticular fibres, and the origin of the optic radiations. The chief artery for supply, however, is the posterior cerebral; it assists in forming the choroidal plexus, it supplies the corpora geniculata, the corpora quadrigemina, the pulvinar, the fornix and the splenium, with the anterior portion of the optic radiations, though not quite up to their origin.

The mesial surface of the occipital lobe is entirely supplied by the posterior cerebral, which terminates in two branches, the occipito-parietal and the calcarine; they go to the lingual and cuneate gyri, the fusiform and gyrus quadratus, the pole of the occipital lobe and other parts of the visual cortex. The outer surface of the occipital lobe with the angular and supramarginal gyri are supplied by

the middle cerebral. There is a very free anastomosis between these vessels, so that a faulty circulation due to embolism of one artery should be readily restored by means of the other.

The posterior part of the radiations are supplied according to their proximity to the cerebral cortex, the dorsal and outer layers by the middle cerebral artery, the inner and ventral layers by the posterior cerebral.

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SOME OBSERVATIONS ON PREPARATIONS OF LACTIC ACID BACILLI AND THE PRODUCTION OF SOURED MILK.

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THE administration of lactic acid bacilli promises to find a permanent place in therapeutics, and I have thought that the results of some experimental work voluntarily undertaken for the benefit of medical practitioners with whom I come in personal contact might not be without interest to others.

For a starting point I selected four "brands" of lactic acid bacilli (two English and two Continental) which appeared to find most favour; I also obtained a milk culture. These were all simultaneously incubated at 105° F. for ten hours and afterwards allowed to remain for twelve hours, when the following results were recorded, one tablet having been added to each half pint of milk, which had previously been boiled for a few minutes, then allowed to stand for thirty minutes and the layer of fat removed.

Sample.	Physical Characters after Incubation.	Production of Acid calculated as Lactic Acid B.P.
1. English tablet ...	No curd; slight sour taste	Per Cent. 0.42
2. Continental tablet	No curd; slight sour taste	0.24
3. Continental tablet	Slight curd; not "soured"	0.07
4. English tablet ...	Moderately good curd; bitter taste	0.12
5. Milk culture ...	Firm curd, with refreshing acidulous taste (curdling appeared in four hours)	2.34

The tablets were first powdered and triturated with a small quantity of sterilized water, when Nos. 1 and 2 were found to possess an acid reaction, and Nos. 3 and 4 were neutral. The milk culture (No. 5) was strongly acid.

From the product obtained by means of the milk culture some tablets were prepared by carefully drying the curd, mixed with its own weight of milk sugar, at a temperature not exceeding 100° F.; the tablets thus prepared were excellent pharmaceutical specimens, producing a satisfactory curd and in lactic acid content comparing favourably with the tablets previously examined.

YIELD OF LACTIC ACID.

Attempts were made to extend the period of incubation, but the results, from a dietetic point, were not satisfactory, especially when starting with the small quantity of bacterial substance contained in one tablet; after twenty-four or thirty-six hours there was great liability for butyric fermentation to set in, and the milk became less palatable; but by taking a larger amount of material, as was possible in the case of a culture, a high lactic acid content was soon reached and secondary fermentation did not occur.

Culture Tested Daily for Acidity.

After one day's incubation ...	2.28	per cent. lactic acid, B.P.
" two days' "	2.58	" " "
" three " "	3.48	" " "
" four " "	4.56	" " "
" five " "	4.56	" " "

It was assumed that acid production, or bacterial activity, terminated as a result of the lactose (milk sugar) contained in the milk having all become converted into lactic acid. To ascertain if the addition of lactose would accelerate acid production, two cultures were made, (a) containing two tablets in 100 c.cm. of milk, (b) containing two tablets in 100 c.cm. of milk, with the addition of 4 grams of lactose; after seven days' incubation at 100° F., the amount of lactic acid produced in (a) and (b) was found to be identical—namely, 3.12 per cent. in each sample. It therefore appears that the addition of milk sugar was unnecessary.

Another question was, Does the curd or the whey contain the greater proportion of acid? A sample of soured milk was examined, in which no separation of casein had occurred; it was afterwards heated in a flask or a water bath for a few minutes, until coagulation had taken place, for a sufficient quantity of whey to be obtained, and the estimation of the acid in both instances was found to correspond exactly.

EFFECT OF TEMPERATURE.

With a view of ascertaining the optimum temperature for the lactic acid organism, a sample of milk treated with the bacillus of Massol was divided into three parts, and the following results were obtained in the same length of time:

Temperature.	Amount of Lactic Acid B.P.
80-90° F. ...	1.44 per cent.
90-100° F. ...	1.68 "
100-110° F. ...	2.28 "

These results were practically confirmed by tests with the tablets which I had prepared; one tablet in half a pint of milk gave—

Incubated below—	Lactic Acid B.P.
100° F. ...	0.12 per cent.
105° F. ...	0.26 "
110° F. ...	0.72 "

I consider the disappointments which have been expressed in the preparation of sour milk are due (1) to employing insufficient bacterial substance, (2) to inefficient temperature. Some popular forms of apparatus on the market are heated by means of a night-light, and the temperature produced with night-lights from the same box has been found to vary 15° F. To obtain the best results a moist culture is recommended and cultivating for at least four hours between 105° and 110° F., the growth of adventitious organisms is thereby inhibited, and an amount of lactic acid quickly produced to retard their subsequent development.

NOTE.—It was found that the milk heated for ten hours at 105° F. gave a reaction to phenolphthalein, which corresponded to 0.048 of lactic acid B.P., and this amount has been deducted in the results above recorded.

AN international Medico-Psychological and Psycho-Therapeutical Association was recently founded at Salzburg on the initiative of Professor Forel, Dr. Oskar Vogt, and Dr. L. Frank, and other well-known neurologists. The president is Professor Raymond, of Paris; the vice-presidents, Professor Forel and Dr. Oskar Vogt, of Berlin.

THE Royal Dental Hospital of London being burdened with a mortgage of £42,086 appeals for donations and subscriptions to maintain the hospital in its present state of efficiency, for which a sum of £3,000 a year is required, in addition to £2,759, a compulsory yearly payment for the redemption of the mortgage. The number of operations performed in 1908 were 109,659, and of these anaesthetic cases numbered 50,050. The secretary is Mr. J. Francis Pink.

LEUCOPLAKIC VULVITIS AND ITS RELATION TO KRAUROSIS VULVAE AND CARCINOMA VULVAE.

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THE occurrence in the tongue of a peculiar type of inflammation, leading on to a leucoplakic condition of the mucous membrane and terminating in carcinoma, has long been known.

It was first described in 1869 in the *Transactions of the Clinical Society* by John Whittaker Hulke, the Council of the Royal Medical and Chirurgical Society having refused to publish his paper some four years previously. Sir Henry Morris described the second case, and also was the first to call attention to the frequency with which a similar type of inflammation preceded carcinoma of the vulva, and operated upon several patients with the combined disease. Both of these eminent surgeons were acting members of the Middlesex Hospital surgical staff, a matter of great interest to the authors of this paper.

It is remarkable that a clinical observation of such importance should have attracted so little attention, especially by gynaecologists, and that the only two English writers who have subsequently drawn attention to the subject, namely Bland-Sutton and Butlin, should both be general surgeons.

The relation borne by leucoplakic vulvitis to carcinoma is closer than that of any other pathological lesion with the exception of the entirely modern x-ray dermatitis. In 1885 Breisky drew the attention of gynaecologists to a disease which he named "kraurosis vulvae." His description led to much confusion, for whilst he undoubtedly described a till then unrecognized condition, subsequent writers on the subject down to the present time, as can be seen from the textbooks, appear to have confused the conditions of leucoplakic vulvitis and kraurosis vulvae, and to have considered them different phases of one and the same disease.

In this paper, then, we shall proceed to show that leucoplakic vulvitis and kraurosis vulvae are two distinct diseases, and we shall then pass on to consider the relation borne by the former to carcinoma of the vulva.

*[LEUCOPLAKIC VULVITIS.]**[Definition.]*

Leucoplakic vulvitis is to be defined as a chronic inflammatory condition of unknown origin characterized in its early stages by marked hyperaemia and cellular activity, and in its later phases by marked epithelial hypertrophy and a thickened, sclerosed, and retracted condition of the subepithelial tissue.

[Distribution.]

Its distribution varies with its severity and time of incidence. In a well-marked case the whole of the vulva may be implicated with the exception of the vestibule and orifice of the urethra, which are never affected; and not only may the labia majora, minora, anterior and posterior commissures and the clitoris suffer, but the disease may even spread laterally to the folds of the thighs and posteriorly over the perineum and skin surrounding the anus.

[Signs.]

Clinically, leucoplakic vulvitis may be divided into four stages, according to the macroscopical features which it presents. In the first stage the parts affected have a reddened, swollen, and excoriated appearance, and their surface is dry.

In the second stage, whilst the labia minora decrease in size and may even become mere ridges, there is a sub-epithelial thickening, so that the parts can be said to have undergone "retraction with thickening." The colour of the affected area now changes from red to white of a