are available as a powerful chemical filter for the protection of both mother and child. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa at the placental site, and to open up maternal blood vessels, so that the ovum may have a resting place with nutritive blood spaces round it. As a result of the destructive action of the ferments upon the maternal tissues, syncytio-toxins are formed, but appear to be normally at once neutralized by so-called syncytio-lysins, and it is believed that if either of these bodies is in excess maternal and fetal toxæmia may result, often with fatal results. These ferments have been demonstrated chemically by Abderhalden to be present in the maternal blood till fifteen days after labour, and syncytio-lysin, or a maternal antibody, is demonstrable between the sixth and fourteenth week of pregnancy.

Dr. Routh suggested that these trophoblastic chorionic ferments are not only able to break up the infective spirochaetes into granules, but can, by their continued action, keep the granules quiescent and powerless to develop into the mature organism till after pregnancy, when the ferments soon cease to be present. The biological activity of the granules, unless restrained by other substances, would then be resumed, and mature spirochaetes would be developed.

He proposed explanations of the four following problems, founded on the spirillolytic action of the chorionic ferments:

1. Why may a pregnant woman who in due course either has a stillborn or a living syphilitic child have a negative Wassermann reaction during pregnancy and for some time afterwards?

2. Why are some syphilitic children negative at birth, and for some weeks afterwards?

3. Why are spirochaetes so rarely found in abortions, even though alternating between stillbirths, in the tissues of which they are swarming?

4. How do these suggestions of the spirillolytic action of the chorionic ferments help to explain the truth of the original words of "Colles's law"?

His conclusions were as follows:

CONCLUSIONS.

My suggestions seem to point to the following conclusions, some of which are scientific facts, whilst others are non-proven, but I think logical.

1. The "granules" are the result of the "spirillolysis," or breaking up of the *Spirochaeta pallida*.

2. The "granules" are infecting agents, being in fact spirochaetes in the granule stage. They are able to develop into the mature spirochaete in a suitable environment, or may become biologically inactive and remain latent for short or long periods.

3. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces round it. As a result of the destructive action of the ferments upon the maternal tissues, so-called syncytio-toxins are formed, but appear to be at once neutralized by so-called syncytio-lysins. If not thus neutralized, maternal and fetal toxæmia may occur.

4. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties upon the *Spirochaeta pallida*, which may either be in the maternal intervillous, or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise.

5. This destructive action of the chorionic ferments upon the spirochaete breaks it up into granules.

6. I further suggest that during pregnancy it is the continued action of the chorionic ferments upon the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them.

7. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochaetes.

8. The success or failure of the chorionic ferments to protect the mother and child from spirochaetal infection would depend upon (a) the virulence of the infection,

which tends to diminish, owing to the presence of more maternal antibodies, with each successive pregnancy; and (b) upon the source of the infection. Infection is probably most difficult to arrest in a "mixed transmission," or in a true maternal infection, where attempts at infection of the embryo would be constantly proceeding throughout the pregnancy. It is probably least severe, and most easily countered by the ferments, when the primary infection is paternal, for it may then be a single infection only, and probably not capable of repetition if the primary infection be arrested.

9. The Wassermann reaction in mother and child appears to be negative if infection has been only by spirochaetes in the granule stage, so long as the granules remain biologically inactive and the mature organisms are absent.

THE COURSE OF INSTRUCTION IN VENEREAL DISEASES.

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IN view of the recommendations of the Royal Commission on Venereal Diseases, medical schools are faced with the problem of providing their students with special instruction on the diseases popularly included under the term "venereal disease."

The recommendations of the Commission as to teaching are summarized as follows in their Final Report (Sect. v):

(27) Whether by means of compulsory attendance at a course of instruction in venereal diseases or otherwise, it should be rendered certain that every medical student has adequate practical instruction in these diseases. Every medical student should attend a course of practical instruction in skin diseases.

(28) Questions relating to syphilis and gonorrhoea should be systematically set in medical and surgical examinations, so that the knowledge acquired in these diseases by candidates for examination may be tested.

As there is no class at present in the curriculum to which it would be possible to refer the teaching of this subject, the establishment of a new class will be found necessary, and the course will require to be compulsory, otherwise only a percentage of the students will attend. No expedient, such as including a question on the subject in one of the medical or surgical papers of the final examination, especially when such question is neither set nor checked by the teacher, will succeed in ensuring the attendance at a voluntary class of the majority of students. The General Medical Council may solve the question in one of the three following ways: (a) The establishment of a new compulsory class on the venereal diseases; (b) the inclusion of the teaching of the whole subject in a compulsory dermatology class; (c) the division of the subjects between a dermatology class and a new class of genito-urinary surgery, both compulsory. The last method would be the ideal one, but, unfortunately, in addition to imposing two new classes on the student, it is a plan which it would be possible to realize at present in few medical schools owing to the paucity of genito-urinary clinics. If medical education had been allowed to follow its natural process of evolution we would doubtless have found the teaching of syphilis allocated to the dermatologist and that of gonorrhoea to the genito-urinary surgeon. But circumstances have combined to force the pace in another direction, and with attention focussed on venereal disease while genito-urinary surgery lags behind, it must be recognized that the attempt to carry out this plan would involve intolerable delay.

Of the remaining alternatives there is much to be said in favour of the venereal diseases being included in an enlarged dermatology course. By this procedure the interest of the patient, the student, and the teacher would seem to be best served. The students' curriculum is extended by the minimum, while both recommendations in Clause 27 are complied with, the patient escapes the stigma of attendance at a purely venereal clinic, and the teacher is released from an undesirable curtailment of his sphere of work. On the other hand, it will doubtless appear to the governing bodies of many medical schools that the simplest and most direct way of dealing with the question

as it stands to-day is to institute voluntary classes on venereal disease while awaiting the considered action of the General Medical Council, and certainly no divergence of opinion exists as to the desirability of conducting post-graduate classes on venereal diseases at all suitable centres.

In these circumstances it may be of service to give a short sketch of a venereal disease clinic and its course of teaching, based on the experience gained at Glasgow, where a university lectureship was established some years ago.

The lecturer has charge of a venereal department at the Royal Infirmary and also of the Lock Hospital for Women, and the instruction is given at these institutions. In each there is both an outdoor and an indoor department; in the indoor a treatment room is attached to each ward and there is a central operating theatre. The outdoor department (which should have an evening hour of attendance) consists of a waiting room, an examination room, a treatment room, and a bacteriology room, all in series.

The examination room is divided into compartments by screens or otherwise, each containing an examining table; the work is thus expedited without sacrificing privacy. An instrument cabinet, dressing tables, wash-hand basins, and a sink complete the furnishing of the room. In addition to the usual surgical instruments and sterilizer, the special instruments include cystoscope, urethroscopes, storage battery; urethral probes, knives and cauteries; catheters, Watson's sounds, flexible bougies (filiform, acorn-tipped, and olivary), hot sounds, syringes, irrigating stand, urological basins, and salvarsan apparatus.

The bacteriology room should be supplied with a good microscope, having an oil immersion lens and dark-ground illumination, an incubator at 37° C., and also stains and apparatus. Tubed media can be obtained from the regular bacteriological department as required. Wassermann tests are performed only in the regular pathology department.

The treatment room in the department for male patients should have a number of cubicles each containing a urinal, and, at a height of 4½ ft. above the urinal, a two quart glass reservoir with attached rubber tubing for the irrigating solution. The most efficient means of treating gonorrhoea we have at present at our command is the *grand lavage* method of Janet. This can quite well be carried out by the patients themselves in a standing posture, but a trained attendant must be in attendance at treatment hours. He supplies each patient with a sterilized cannula, explains the details of the procedure, sees that the whole process is properly completed, and keeps a record of attendance. With this provision, a patient suffering from acute gonorrhoea can, during the first week, attend twice daily for treatment and with decreasing frequency thereafter, at hours to suit his own convenience, and he is only required to see the medical practitioner in charge at stated intervals.

The course of instruction includes at least twelve lecture-demonstrations. By a selection of cases systematic teaching and clinical instruction can be combined. In addition each student is given the opportunity of practising the technique of the various methods of diagnosis and treatment, the class being divided into sections of not more than six for this purpose. Prominence is given to the clinical and practical features of the course.

Syllabus of Course: Twelve Meetings.

1. Historical and general survey. Acute gonorrhoea in the male: anatomical and physiological data: bacteriology and pathology. Each student collects specimens for bacteriological examination.
2. Diagnosis of anterior and posterior urethritis: treatment of gonorrhoea, practice of *grand lavage*, etc.
3. The complications of gonorrhoea and their treatment: the preparation of vaccines, etc.
4. Chronic gonorrhoea, its diagnosis and treatment: use of bougies, sounds, urethroscopes, etc.
5. Gonorrhoea in women and children.
6. Urethritis simplex: venereal sores: balanitis: technique of examination to prove patient free from infectivity: prophylaxis.
7. Syphilis. Pathology: primary syphilis: classification of chancres: demonstration of the *Spirochaeta pallida*. Each student secures and examines specimens.
8. Systemic invasion: skin and mucous membrane manifestations: Wassermann reaction: methods of taking blood and serum specimens practised.
9. Late appearances of syphilis: syphilis of internal organs.

10. Syphilis of the nervous system: withdrawal of cerebro-spinal fluid for examination.

11. Congenital syphilis: syphilis of eye and ear.

12. Treatment of syphilis. Each student during the course administers kharsivan intravenously, and also practises intramuscular mercurial injections, etc.

It will be noticed that in the above synopsis almost half of the course is devoted to gonorrhoea. This, I believe, is not an undue proportion. In no other class is there more than a passing reference to gonorrhoea, while this does not hold good of syphilis. A considerable knowledge of technique is required, particularly for the treatment of chronic gonococcal infections, and a corresponding amount of time must be assigned to its teaching. Gonorrhoea is a much more common disease than syphilis, and its after-effects are hardly less important.

In so limited a course the teaching on syphilis has to be concentrated mainly on practical points in diagnosis and treatment, and on subject matter either neglected or not fully considered by the teachers in other classes. While syphilis has to be portrayed as a complete whole, and all its manifestations displayed in perspective, the lecturers on medicine are not relieved of their responsibility for giving detailed instruction on syphilitic disease of the circulatory and nervous systems, nor the ophthalmologist with reference to syphilitic disease of the eye. Patients with nerve and eye symptoms are examined, discussed, and treated, and the knowledge of the students on these cases tested, and, when necessary, reinforced; but little more than a summary is attempted. The relative value of the Wassermann reaction in the diagnosis, and the proper place of kharsivan in the treatment, of such cases can well be demonstrated in this class.

SUGGESTIONS TOWARDS A SYSTEMATIC OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE MANDIBLE.

BY

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THE problems connected with gunshot fractures of the jaw, in spite of the attention they have received and the special provision that is now made for dealing with them, do not seem to have been carried so far towards solution that we can yet regard the treatment of these injuries as wholly satisfactory. Their clinical course is still long, painful and uncertain; in the earlier stages it is not without danger, in its intermediate stages it is apt to be distressing and disgusting to the patient and chequered by recurrent abscesses and operations, and ultimately it is still apt to leave a residue of more or less permanent deformity and disability. Doubtless much is being done for the improvement of treatment in the special institutions set apart for such cases, and it is common knowledge that notable advances in technique have been made.

One does not, however, altogether escape the impression that fractures of the mandible have perhaps been regarded somewhat too exclusively as essentially problems of dental surgery, though the skill and ingenuity of dental surgeons in attacking them undoubtedly support such a view. The very success of the specialist in securing by ingeniously contrived apparatus fixation of the fragments in the most unpromising cases tends to overshadow the difficulties still remaining in dealing with sepsis and the plastic reconstruction of the jaw.

These very problems, however, are those with which the general surgeon will necessarily have been forced to contend in treating in civil practice diseases implicating the mandible. As far as can be judged from the considerable number of gunshot wounds of the jaw that reach the London general hospitals, the difficulties both as to asepsis and plastic work met with in these cases are closely similar to the difficulties in the same departments that are met with in the treatment of malignant disease in this region. The infective processes seem in the traumatic cases to be almost exclusively of buccal origin and to display clinical and pathological characters closely similar to those that are so familiar and so comparatively easily controllable by adequate measures as incidents in the