

and excellent health, a puddler by occupation, who was struck forcibly upon the right anterior portion of the chest by the handle of the tongs with which he was transferring a ball of metal. He immediately became faint and was seized with dyspnea. A physician examined the chest without discovering any external or internal signs of injury, except a swiftness of respiration. After the use of hypodermics of strychnia, brandy and other antidotes to the shock, he was able to go to his home by street car, a distance of about four miles. Here he received attention during the succeeding four days, and the diagnosis was pneumonia. The temperature, pulse and respiration, rusty sputum, etc., were in evidence in the history, as related to the writer, who was called in consultation on the fifth day, because of the alarming dyspnea which suddenly appeared. The patient was on his knees on the floor pressing the anterior portion of the chest against the mattress and begging for relief for his breathlessness. His features mirrored his desperate suffering. The side opposite to the pneumonia was distended to its utmost by pneumothorax. A paroxysm of severe coughing had preceded the pneumothorax, and doubtless produced a bronchial communication with the pleural cavity belonging to the lung engaged in supplementary respiration. The discomfort was reduced by a hypodermic injection of morphia gr.  $\frac{1}{4}$ , repeated in two hours. The proposition to use a trocar and give exit to the air was persistently rejected. After twelve hours it was determined to give surgical relief, regardless of the patient's opposition. At the hour appointed for the operation the patient was lying calmly in bed, the signs of distress had departed, respirations were reduced from 56 to 40, the pulse from 132 to 110, and the temperature had fallen 3.8 degrees. The physical signs of pneumonia were not gone, neither were those of pneumothorax wanting, but to each side they were much reduced, and the operation was abandoned, and the case progressed to a favorable termination of the pneumonia, which had ended by crisis, but the evidence of effusion succeeded the pneumothorax. The patient, notwithstanding all this, gained flesh, refused to have the fluid removed, and worked six months at the puddling furnace, after which he visited his home in Scotland, returning to his duties at the end of four months. He presented himself for examination one year and two months following the accident with a pyopneumothorax which had evacuated itself of one pint to three pints of pus through the mouth, repeating the evacuations at intervals of twelve to sixteen days. Specimens of this fluid examined on several occasions revealed numerous tubercle bacilli, streptococci and other microorganisms. This spontaneous method of relief continued during seventeen months, when it ceased, and the pleural cavity became distended, to finally present an empyema necessitating pointing between the ninth and tenth ribs on the vertical midscapular line. A hectic condition continued the pulse, temperature and respiration elevations for some time.

He was taken to the hospital and the chest opened, drained and washed out and treated with antiseptics. After three weeks he returned to his home much improved, but gradually yielded to phthisis eight months thereafter.

The study of these cases must include their medical, surgical and legal aspects. This has been advanced by references to numerous authorities and cases. Diagnosis, differentiation and treatment are so interwoven that it seems like supererogation to go into any further detail. The prognosis has been intimated. The medical

treatment should be similar to that of ordinary pneumonia plus the demands of the surgical contributions. Complications or sequelæ are also subject to general and well-known medical and surgical management.

### VERNAL CONJUNCTIVITIS.\*

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So little is understood concerning the pathogenesis of vernal conjunctivitis, and its treatment is so generally ineffective, that it occurred to the writer some months ago to address a circular letter to ophthalmic surgeons throughout the United States, with a view to ascertaining their experience in studying and treating this rare form of disease, and especially for the purpose of determining whether locality influenced the frequency of its occurrence or modified its clinical manifestations.

The paper which follows has, accordingly, been based in large measure on the answers which were received, together with a few personal observations which the writer has been enabled to make on a number of cases which have come under his own care.

#### HISTORICAL SUMMARY.

Before proceeding with this, however, on account of the rarity of the disease and the still comparatively scanty literature upon it in the English language, it may not be amiss to review briefly its history and chief characteristics. Although Arlt, in 1846, undoubtedly referred to this disease in a paper in which he described "Three Cases of Infiltration of the Limbus by Grayish Yellow Transparent Gelatinous Masses," and Desmarres likewise, when he referred to cases of what he designated *hypertrophie perikeratique de la conjunctive*, it was not until 1872 that vernal conjunctivitis was assigned a place as a distinct and separate form of disease, by Saemisch and his pupil, Brockhaus. In addition to Arlt and Desmarres, Graefe, de Wecker and Hirschberg had also reported cases which were beyond doubt true instances of vernal conjunctivitis, but they assumed, in common with Desmarres, that they were dealing with unusual forms of phlyctenular disease.

Saemisch's account of the disease is very complete, and the symptomology which he gave of it is much the same as we know it to-day, with the important exception, however, that he failed to include in his description any lesions of the palpebral conjunctiva. These, which are probably the most common, and certainly the most characteristic features, were first noted by Raymond in 1876, and described more fully by Vetsch in 1879. Since that time a number of important monographs have appeared which have further established the propriety of classifying it as a distinct form of conjunctivitis. Burnett, of Washington, was the first to call the attention of American ophthalmologists to it, in an article which appeared in 1881, entitled "Circumcorneal Hypertrophy of the Conjunctiva." In 1884 Kipp, of Newark, made the second contribution to the American literature. Since then Gifford, Gradle and May have made communications of value and importance.

Vernal conjunctivitis, as we know it to-day, and as it occurs in all probability the world over, consists of an inflammation of the conjunctiva, at times of the lids alone, at times of the globe alone, and not rarely of a combination of these two, possessing certain physical

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features which distinguish it from all other forms of conjunctivitis, but which has, in addition, the peculiar characteristic of appearing with the advent of warm weather and of disappearing with the cold, and of repeating this peculiarity year after year. This seasonable characteristic, whence the name of the disease is derived, is the essential feature of vernal conjunctivitis.

The physical appearances of vernal conjunctivitis are as follows:

#### I. LESIONS OF THE PALPEBRAL CONJUNCTIVA.

(a) The most constant, and perhaps the pathognomonic symptom is a peculiar bluish white, milky appearance of the tarsal conjunctiva. Vetsch was the first to describe this condition, which is present in a greater or less degree in nearly all cases. In the few instances where it is not present the conjunctiva appears dull, infiltrated and thickened.

(b) The surface of the thickened conjunctiva may be smooth; usually, however, there are a number of elevations which present a striking appearance, resembling the granulations of no other form of conjunctival disease. These elevations present a pale pinkish, waxy appearance, and are quite flat, resembling plaques with crevices between. They are situated on the tarsus, the fornix being free, and are usually thickest in the middle of the lid. They are slightly pedunculated.

(c) In another and smaller group of cases the granulations are not so flattened, are yellow, semi-transparent, and cover more of the conjunctiva of the lid. These bear a close relationship to the granulations in follicular conjunctivitis.

In all three types the upper lid is the most affected, the conjunctiva of the lower lid being rarely more than thickened, with but a few elevations on it. The granulations are hard and gristly, this being especially true of the more rounded variety. A watery or mucous discharge is more or less constant, rarely it becomes mucopurulent, but never purulent.

#### II. LESIONS OF THE OCULAR CONJUNCTIVA.

(a) The limbus of the cornea becomes thickened and encroaches upon the cornea, forming a narrow ring of grayish yellow opacity, which encircles the cornea. The inner edge of this zone is sharply circumscribed; the outer blends gradually with the surrounding tissue. This area of infiltration does not show any tendency to broaden and invade the central portion of the cornea, or to break down into ulcers.

(b) Large yellowish red elevations, more or less circumscribed, appear at the limbus in the palpebral fissure, either on the nasal or temporal side, or on both. These are usually somewhat triangular in shape, but may be oval or quadrilateral. When the former, the base of the triangle is situated at the limbus, and is sharply defined from the corneal tissue, while the apex blends gradually with the episcleral tissues toward the equator.

(c) Under this class is included a combination of the first and second forms; in this type the entire limbus of the cornea is thickened and occupied by a series of irregularly rounded warty like tumors, grayish yellow in color. The inner edge of the zone of infiltration is not so sharply defined as in the two preceding types, and at times the corneal tissue is encroached on to a considerable extent. No case has been reported, however, where this was sufficiently marked to affect vision.

(d) Ordinary saturated ulcers of the cornea, which sometimes result from pressure and irritation, occasioned by unusually large and hard granulations in the palpebral conjunctiva. The tumors or elevations which sur-

round the cornea are like the granulations in the conjunctiva of the lids, hard, dense, and as a rule non-vascular. They are not painful on pressure.

It is extremely rare that the disease occurs in the typical form, exhibiting the characteristic lesions of the tarsal and bulbar conjunctiva at the same time, though even in those cases where the elevations are most marked on the bulbar conjunctiva, there are usually at some time or other during the course of the disease, at least the milky haze, if not the characteristic granulations, on the tarsal conjunctiva. Terson has pointed out that often there is a kind of compensation between the tarsal and the pericorneal lesions, the characteristic changes being absent in one part when they are present in a marked degree in the other.

#### PATHOGENESIS.

Various observers have thought the disease to be dependent on a diathesis, and syphilis, scrofula, rickets, gout, and a general neurotic condition have been variously described as the soil upon which vernal conjunctivitis develops. It is possible, however, to exclude each of these in most cases, the disease occurring for the most part in perfectly healthy subjects; nor is there evidence, as will be more fully stated later, to assume that the disease is secondary to any local inflammation elsewhere, as in the throat or nose. In this connection, however, mention must be made of the relation of vernal conjunctivitis to recurring skin eruptions, by reason of the frequency with which eczema has been encountered in cases of vernal conjunctivitis by foreign observers, among whom may be mentioned Unthoff, Vetsch, Danvers and Terson.

It is generally recognized that vernal conjunctivitis shows a predilection to develop in low-lying localities; the testimony of men from mountainous regions being that they see but few cases, and none at all from the highlands. The influence of humidity in aggravating the symptoms has been remarked, and the conjunction of a high temperature and high barometer has been found to be most distressing to subjects of the disease. Although certain authors would have it that a country life predisposes to the affection, there is no evidence to prove this, as it appears that city life, with the irritation provoked by the dust from the street and by the smoke with its carbon particles suspended in the air, offers as favorable conditions for its development.

Unlike most forms of conjunctivitis, vernal conjunctivitis affects all grades of society. All races are apparently equally susceptible, both whites and blacks being subject to it, and the disease seems to occur with the same relative frequency among the Jews.

On account of the recurrent nature of the affection, a micotic origin has been repeatedly searched for, but as yet no pathogenic micro-organism has been isolated.

It was thought by some, by reason of a certain similarity in their physical appearances, that vernal conjunctivitis was a form of trachoma. Until the morbidity of both diseases is better understood, it is impossible to deny absolutely a relationship between the two, but the course and sequelæ of both diseases are so different that there are but few who now hold to such a theory. In like manner, there is no evidence to support the theory of an association with phlyctenular conjunctivitis; indeed, though Knus would regard vernal conjunctivitis as a peculiar hyperplastic conjunctivitis in intermediate relationship with the ordinary inflammations of the conjunctiva, and thinks that the disease is a modification, or at any rate develops

from these, there are no grounds to couple it with any form of other ocular disease.

#### PATHOLOGY.

An excellent résumé of the histological changes which have been seen by various observers in vernal conjunctivitis, has been recently given by Terson. This author states that with few exceptions writers have given an excessive preponderance at one time to the epithelial nature, and at another to the subepithelial character of the granulations; so far as he is concerned, however, he agrees with Redmond in holding that the epithelium, although proliferated, does not constitute the mass of the neoplasm, but that the granulation is really a proliferation of the conjunctival tissue itself, with the increase in the number of elongated and narrowed cells, and also of embryonal and round cells.

In common with others, Terson noted that the histological changes differ somewhat in the pericorneal and tarsal forms; thus in the former he found a thickened epithelium of stratified pavement cells of a greater number than normal, but without the invagination noted by most authors; there was no well defined basal membrane; the tissue contained vessels, dilated capillaries and lymphatics, but was lacking in cells; the conjunctival cells were flattened and fusiform, and were compressed between enormous bands of fibrous connective tissue. In addition to these changes, he observed that the tarsal granulations are provided with an epithelium which is less abundant, though of the same nature, and without epithelial invaginations, the mass of the tissue being equally fibrous, though the infiltration with round cells and with leucocytes is much less marked. In this class of cases there is a proliferating tarsal conjunctivitis, a true papilloma of the tarsus, greatly hypertrophied and proliferated with elements which are newly formed and without the enormous lymphatic nests of trachoma. It was noted that in the tarsal variety the epithelial proliferation is less important than in the pericorneal, and that the typical granulations are formed by the subepithelial tissues.

Terson concludes finally that, as a mark of differentiation from the granulation of trachoma and the pustule of phlyctenular disease, the vegetation of vernal conjunctivitis is indurated, and he regards it as being really an attenuated papilloma which does not attain the composite structure and full development of the true form.

These views are substantially those of Danvers, who based his observations on a series of specimens, some of which were taken from eyes at the very commencement of the disease, others in the third year of the recurrence, and others after the tenth year of recurrence.

From the study of sections of the tarsal conjunctiva taken from three cases and mounted for him by Dr. R. A. Shumway and Dr. Harold Goldberg, the writer found a dense fibrous tissue beneath the epithelium which had apparently occasioned the elevations. The epithelium between the contiguous elevations could be seen to dip down below them in finger-like prolongations from the surface. Sections made parallel to the surface showed a network of epithelial cells with the spaces in it filled with dense fibrous tissue, each patch of fibrous tissue having a central blood vessel.

#### SUBJECTIVE SENSATIONS.

The disease usually begins, like an ordinary attack of catarrhal conjunctivitis, with smarting, burning and

lachrymation, though an annoying itching sensation in the lids is apt to predominate. These symptoms persist with remissions during the course of the disease, being aggravated by hot murky conditions of the weather and ameliorated on dry and cool days.

#### COURSE.

The symptoms usually begin with the first warm days of spring, and persist until the days become permanently cool in the autumn. The disease is essentially chronic, recurring each year with obstinate persistency. In a few cases there are remissions, the symptoms failing to manifest themselves during an entire summer, this exception being attributed by Danvers and others to a relatively low humidity during these particular years.

#### DIAGNOSIS.

In its typical, or even under the forms under which vernal conjunctivitis usually presents itself, there should be no difficulty in differentiating it from any other form of conjunctivitis, provided, of course, the observer is familiar with its characteristics, either by study of a previous case seen by him or from a familiarity with the description of the disease as it now appears in all text-books on ophthalmology. In atypical cases, however, the diagnosis is not always an easy matter, and it will often need the history of attacks in previous springs to enable one to differentiate the not uncommon type where the filmy white appearance of the conjunctiva, the granulations and the lesions at the limbus are wanting, and the dull, thickened, infiltrated conjunctiva is the only apparent lesion, from an attack of phlyctenular conjunctivitis. But even in these cases the milky hue of the conjunctiva and granulations will usually manifest themselves if the case be kept under observation a few weeks.

Undoubtedly, however, the greatest difficulty in diagnosis is to differentiate the rather unusual type in which the granules are not flat, but round, and of a semitransparent pinkish yellow tint, from trachoma or from follicular conjunctivitis. Here the history of the case, the absence of pannus and discharge, will enable one to exclude trachoma, while the restriction of the granules to the upper lid, and to the median portion of the tarsus, and the hard, gristly nature of the granules, will make the diagnosis from follicular conjunctivitis. When the palpebral manifestations are absent and those at the corneal limbus are alone present, it is possible that vernal conjunctivitis may be confused with epithelioma, sarcoma, episcleritis, phlyctenular keratitis, gerontoxon, and certain pericorneal hypertrophies and verrucosities which are occasioned by sclero-choroiditis anterior. The history of the case, the age of the patient, and in doubtful cases the microscopic examination of a portion of the growth, will usually enable one to make the differentiation from tumors, while the diagnosis may be made from episcleritis and phlyctenular disease by the absence of signs of inflammation.

Such is a brief outline of the history, of the generally accepted clinical picture and of the pathogenesis and histology of vernal conjunctivitis, and of its diagnosis from other forms of ocular disease. Other details, in reference to its etiology, distribution, frequency, prognosis, treatment, etc., will now be considered, especially with a view to the expression of the views of American ophthalmologists on these subjects, as they have embodied them in their answers to the circular letter already referred to.

*Can You Estimate the Proportion of Cases of This Disease in Your Locality, in Comparison With Other Forms of Conjunctivitis?*

This, the first question, elicited a series of answers which were puzzling, and might have been misleading had several factors not been taken into consideration before any deductions were drawn from them. It was apparent, in the first place, that answers which were practically at variance with one another came from ophthalmologists in the same vicinity, often in the same cities and towns, all being based upon observations of ocular disease occurring among members of the same community. Where one would state that he saw ten cases of vernal conjunctivitis annually in his private and hospital practice, another would say that although he had been practicing in that community for twenty years or more, and had observed thousands of cases of ocular disease, he had never encountered one which he considered to be a true instance of vernal conjunctivitis. Thinking there must be some explanation for this, the writer had further communication with a number of those who disclaimed ever having seen a case, and elicited from most of these that they had been looking for typical examples, and relegated all others to other forms of conjunctivitis.

Taking this factor into consideration and making allowances for "the personal equation," in a number of instances, it was ascertained that vernal conjunctivitis existed in all parts of the United States, always as a very rare disease, but exceedingly uncommon in New England, the Northwest and the highlands of all the states, and that it occurred in most of the large cities of the other parts of the country, inland as well as seaboard, in the proportion ranging from one case of vernal conjunctivitis to every 200 to 500 of conjunctival disease.

Certain observers give a greater relative frequency and others a far lower, but this proportion is a conservative estimate of the average.

It was noted that the percentage of cases was higher in private than in hospital practice, but this, it is thought, may be explained by the lesser frequency with which all forms of conjunctivitis occurs among the better classes, and also by the fact that sooner or later, by reason of its intractability, nearly all cases of vernal conjunctivitis are brought to the private consultation of the ophthalmic leaders in every community.

It is difficult to ascertain how these figures compare with those obtained in other lands, but from personal observation and from communications received from Fuchs of Vienna and Collins of London, and from Terson's studies in Paris, the writer would judge that it occurred in these cities with about the same frequency as in the larger American cities. There is an impression among American ophthalmologists, particularly those who have spent some time in foreign clinics, that vernal conjunctivitis occurs more frequently abroad than at home. The writer, however, would recall to such the large number of patients in attendance at most foreign clinics, and that as students they saw all the rare cases in each clinic. Danvers quotes a number of statistics regarding the frequency of the disease in foreign lands, but does not mention the proportion in which the disease occurs with other cases of conjunctivitis, merely giving the frequency of its occurrence among the total number of cases. He found that as a general rule the disease is more prevalent in southern than in northern countries.

*Do You Think This Disease Is Becoming More Prevalent?*

From the answers received to this question, there seems to be no ground for the belief that vernal conjunctivitis is increasing in frequency, the relatively greater number of cases which have been observed in recent years being due, in all probability, to a more widespread knowledge of the disease, especially in its atypical forms.

*Which Type Predominates in Your Locality—The Palpebral, Where the Disease Is Limited to the Conjunctiva of the Lids, or the Ocular, Where There Are Distinct Changes at the Corneal-Scleral Margin, or the Associated, Where Both Palpebral and Ocular Types Are Combined?*

This question had a two-fold purpose; first, to ascertain whether locality had any influence upon the physical appearance of the disease, and secondly, to determine the relative frequency of occurrence of the various types. In regard to the first, it was apparent that locality has no influence whatever upon the type which the disease assumes, for upon this phase of the subject similar answers were received from the most widely separated parts of the country; bearing upon the latter point, the answers were most instructive, for they showed that the palpebral type was much the more common (60 per cent.), that the associated form occurred next in frequency (30 per cent.), while the disease was limited to the ocular portion of the conjunctiva in but 10 per cent. of the cases. It is possible that the percentage of cases of the palpebral type is even higher, as many cases of this type are doubtless overlooked, either from the patient not seeking relief, or from the ophthalmologist not recognizing it, by a failure to evert the lid; when the changes are at the scleral-corneal margin, the diagnosis is more readily made.

It is proper at this point to refer to a type of the disease which Burnett, of Washington, has described in negroes. In his article, which appeared in Knapp's "Archives for Ophthalmology" (Vol. X, page 414), under the title of "Circumcorneal Hypertrophy of the Conjunctiva," this distinguished observer said that "in addition to these appearances (i. e., the typical) which I have observed in both the white and colored races, I have found quite a peculiar and remarkable appearance in the conjunctiva in every case of this disease I have met with in the negro. This consists in a brownish discoloration of the conjunctival tissue, most intense at the scleral base of the mass, and gradually fading away toward the equator of the ball. This discoloration, which is undoubtedly situated in the conjunctival tissue itself, as well as in the epithelial layer, is not regular in its distribution, but appears to consist of a collection of small deposits of brown pigment. These deposits are sometimes collected in rather large masses, particularly near the base of the elevation, but toward the equator they appear as small brownish specks in the dull and succulent conjunctiva. In some instances this brownish discoloration extends but 3 mm. from the circum-corneal elevation, while in others it reaches almost to either canthus."

Though Philadelphia is a northern city, it has a very large colored population (60,000), and the writer is in charge of three large clinical services, two of which are situated in the quarter in which most of the negroes dwell. He has observed the changes so accurately described by Burnett, a number of times, but has always considered them to be occasioned by a marginal phlyc-

tenular keratitis, or to changes somewhat similar to those producing pingueculum or pseudo arcus senilis. The inflammation in this class of cases persists all the year, is not associated with the peculiar whitish film and flattened granulations of the palpebral conjunctiva, and usually yields readily to tonics and the local remedies prescribed in phlyctenular keratitis. To obtain further testimony regarding this subject, special letters which covered this phase were addressed to a number of eminent southern ophthalmologists, and the replies of all indicated that while they had observed vernal conjunctivitis in negroes, they had found that it assumed its ordinary form in this race also, and that though they were familiar with the changes observed by Burnett in the limbal tissues of these subjects, they did not consider them to be in all instances due to vernal conjunctivitis, but in most cases to be the result of a localized inflammation of the limbus, as they considered that there was a tendency to a thickening of the tissues at the margin of the cornea in most inflammatory diseases of the eye of the negro.

*Do You Often See the Peculiar Flattened Fungoid Elevations of the Palpebral Conjunctiva Referred to in the Text-books; or does the Disease Take the Form of a Thickening of the Conjunctiva Without the Development of the Elevations?*

In the description of the clinical varieties under which vernal conjunctivitis might occur, the writer divided the palpebral forms of the disease into three classes; (a) those which present the milky white appearance of the conjunctiva, and others where this is absent, but in which the conjunctiva is dull, infiltrated and thickened; (b) those in which the conjunctiva is covered by rows of flattened elevations, and, (c) those in which the granulations are round and yellow, and harder than in the preceding variety.

From an experience gained by carefully following three cases during the past ten years, and a dozen or more for shorter periods, the writer is of the opinion that the first two forms represent but different stages in the development of the disease. In the first year or two, before the disease has persisted sufficiently long to produce very marked changes, the conjunctiva is in the condition described under class (a). After several years of recurrences, however, and proliferation of the epithelial tissue, elevations form, which attain a greater growth each year unless treatment is inaugurated. Such elevations are usually flattened, but occasionally assume a rounded form. This latter type is most intractable to treatment, persisting through the winter, and manifesting a tendency by the size and hardness of the granulations to injure the cornea by mechanical means. Cases of this type resemble trachoma, and it is probable that they may be referred to these in his report of six cases of mixed forms of trachoma and spring catarrh. From a careful reading of his article, it does not appear to the writer that May substantiated a diagnosis of trachoma in any of these six cases, the slight cicatrization in the conjunctiva being readily explainable by the employment of caustics and operations of expression, and the faint trace of pannus to an irritation of the cornea by the granulations.

From the answers received to these questions, it was apparent that elevations in the conjunctiva appeared in about 60 per cent. of all cases, though in many they were but slightly marked.

*Have You Found Both Lids to Be Affected, or Have You Noticed a Predilection of the Disease to Attack the Upper Lid?*

The majority of the answers showed that both lids were, as a rule, affected, though the lower lid rarely manifested more than the thickening already referred to, the milk-white haze and the elevations being seen only on the upper lid. Callan, of New York, explains the occurrence of the granulations on the upper lid, to the greater pressure to which the conjunctiva of that lid is subjected, and believes that this excites tissue changes, analogous to the growth of a corn on the foot.

*Have You Ever Seen the Disease Limited to One Eye?*

Vernal conjunctivitis is essentially bilateral, though from the answers received it is apparent that in a small number of cases (7 per cent.) it may be limited to one eye. It is possible, however, that even in these few cases, the observers may have seen the disease in an early stage, and that manifestations appeared later in the fellow eye.

*Do You Think the Peculiar Whitish Coloration of the Conjunctiva the Most Constant Symptom of the Disease?*

From the statistics it was learned that the conjunctiva presented a milky white appearance in 70 per cent. of all cases. This sign was present in every instance in the palpebral variety except in those which were characterized by the rounded variety of granulations and in another small number where the conjunctiva was dull and thickened. This appearance must be regarded as the pathognomonic physical sign of the disease, as the pathologic changes on which it depends, i. e., the thickened epithelium augmented later by the formation of a delicate subepithelial film of cicatricial tissue, must occasion it sooner or later. It is usually an early manifestation.

*What Have You Found to Be the Age Limits of the Disease?*

The experience of American ophthalmologists corresponds with those of European observers in regard to the age limits, cases being cited in the statistics occurring at ages ranging from 18 months to 50 years. The majority concurred, however, that the disease had its most frequent manifestation between the years of 6 and 16, and that it was very rare in individuals over 40 years of age. Desmarres noted that the disease could occur in very young children, at times almost congenitally. The writer has observed a well-marked case of the pericorneal type in an infant of 8 months, and Fuchs writes him that he has treated the disease in a man over 60 years of age. Risley reports a case in a man 50 years old.

*Have You Observed Vernal Conjunctivitis in Females, or Do You Think Males More Liable?*

The statistics obtained from the answers to this question showed that the experience of American ophthalmologists was analogous to that of Knüs, 85 per cent. of whose cases were males and but 15 per cent. females. A number recorded never having seen a female affected by the disease. No explanation of this comparative immunity of women has yet been offered.

*At What Month Does the Disease Usually Appear in Your Neighborhood, and When Does It Disappear?*

As would be supposed from the earlier advent of hot weather in the south, answers from the southern ophthalmologists showed that the disease appears earlier there than in the north. This subject is best considered under two headings; first, as regards subjective symptoms, and, secondly, objective signs. The former appear during the first few warm days of spring, and disappear entirely only with the cold weather of the autumn; the objective signs may, however, persist through the entire year—and this is particularly true of cases exhibiting

the hard rounded granulations in the conjunctiva and those with large prominence at the limbus, though occasionally a few flat granulations, and more rarely the whitish film of the conjunctiva will persist through the winter months, even in comparatively mild cases.

Although the time at which the disease first appears varies each year, according to the temperature, the first symptoms manifest themselves, as a rule, in the northern states in March or April, and in the southern states a few weeks earlier. By October all acute symptoms have usually disappeared. It has been the experience of the writer that when the atmospheric conditions which favor an outbreak of vernal conjunctivitis are present, that many of those who had been under his care in previous years for this disease, would consult him within a few days of one another, giving unmistakable evidence of the relationship existing between the various types, and enabling him to classify several cases as vernal conjunctivitis of whose precise nature he had been up to that time somewhat in doubt. He would also call attention to the fact already noted by others, of the influence which humidity has in precipitating attacks, the two factors of excessive humidity and high temperature being apparently necessary for an outbreak of the disease.

*Have You Found That the Disease Grew Less Marked in Succeeding Years?*

It was learned from the consideration of the ninth question that it was only in very rare cases that vernal conjunctivitis was seen in subjects after 40 years of age; it was judged from this that either when this age was attained, the pathogenic agent producing the disease had exhausted itself, or that by that time changes had occurred in the tissue of the conjunctiva which rendered it immune to the particular agent causing the disease. It was hoped that the answers to this question might determine whether there was not some limitation other than age, and whether the hope could not be extended to subjects of the disease that although treatment appeared ineffectual in curing the attack in any one year, nevertheless changes were wrought by it which would occasion a disappearance of the symptoms after a period of years. The writer's observation of nine cases which he has been able to follow by comparatively frequent study, for the past six years, indicated that though the disease persists in most instances for six or eight years, it loses its activity after that time. The observation of others corroborates this, as well as the rarity of the disease, for did it persist in all instances from the time of its first appearance, in early infancy perhaps, with annual manifestations, until adult life was attained, it would be much more commonly met with than is the rule; although Weeks speaks of a case in which recurrences had taken place every year for seventeen years, and Schwenck has followed a case since 1885, who has had yearly remissions.

It may be stated in general that the disease shows a tendency to become less marked from year to year; there may be years when, owing to some unusual climatic influences, or to some special systematic condition of the patient, the symptoms are aggravated, but generally speaking, they seem to lessen as years go by. Whether this may be attributed to the persistence and continuance of treatment, or to changes in the ocular tissues themselves, can not be ascertained.

The prognosis, therefore, of vernal conjunctivitis may be stated in general terms to be good, for although the duration of the disease is protracted, and its symptoms so annoying in many cases that all use of the eyes must

be suspended during a considerable period of each year, the ultimate issue is favorable, for with the exception of the ulceration of the cornea, which is occasioned in a few instances by the hard and horny granulations, the comparatively rare form of palpebral involvement at the center of that membrane is unaffected. As a general rule, the disease disappears wholly, leaving no trace in either the lids or the eyeball, though in a few cases certain changes occur which detract from the appearance of the eye from a cosmetic standpoint.

The most constant of these is a white ring of opacity on the margin of the cornea and a slight drooping of the upper lids, which imparts a sleepy look to subjects of the disease.

*Have You Found Any Connection Between the Ocular Disease and Any Other Local Disease, Such as the Naso-pharynx and Throat?*

Upon account of the close anatomical connection between the mucous membrane of the eye and nose, and pharynx, most cases of vernal conjunctivitis present symptoms of more or less irritation of the nose and pharynx. This has occasioned in the minds of many the belief that the inflammation of the mucous membrane of the eyes was secondary and dependent on a disease of the naso-pharynx. The answers would indicate that a number of American ophthalmologists held this view, which agrees with the observations made abroad by Couëtoux, Tétan, Stilex, Danvers and others; the writer, however, quotes the opinion of the majority of American observers when he states that he believes the naso-pharyngitis to be purely of secondary origin, and to be explainable in the words of Bennett, of Buffalo, as follows: "The lachrimation in these cases is often excessive, and the carrying off of so much extra fluid into the nose causes the turbinates to become soggy, and the nostrils to become wholly or partially occluded. The proof of this to my mind is that when the elevations on the lid are removed, the excessive lachrimation ceases and the catarrh rapidly subsides."

In 1886 Gradle, of Chicago, reported four cases of a disease of the conjunctiva, which, by reason of their periodicity—lasting only during the warm season—suggested to him that they represented the pathologic entity known as hay fever, localized, however, entirely and principally in the conjunctiva. Although there was no manifestation on the globe, the changes in the tarsal were characteristic of vernal conjunctivitis. In a later paper (1895) this author states that the etiology of the affection is unknown, and adds that none of the cases observed by him presented the history of annually recurring typical hay fever.

*Have You Ever Known the Disease to Be Contagious?*  
All of the answers to this question were negative, with the exception of that received from Weeks, of New York, who replied that "often two or more in a family were attacked, a fact which points to a contagious quality, although, he adds, "it is possible that infection alone may explain the manner of the acquisition of the affection in all of the cases that come before us."

*Have You Ever Known the Disease to Be Hereditary?*  
Although the answers received to this question would tend to corroborate the view held hitherto, that the disease is not hereditary, a number of replies were received which indicated that the reverse might sometimes be true. Thus Wilder, of Chicago, cites the case of a boy 6 years old, whose mother gave a history of having had attacks of vernal conjunctivitis for a number of years, although an examination of her eyes made at the same time with her son's, showed no signs of it. Stevenson

of Ohio, saw both mother and daughter affected. Jackson, of Denver, thinks that he has seen instances where the disease was transmitted to the second generation. Theobald, of Baltimore, reports cases of the palpebral variety occurring in both father and son; and finally, Gifford, Tiffany and several others believe the disease to be sometimes hereditary.

*What Treatment Have You Found Most Efficacious?*

The chief interest of the clinician in vernal conjunctivitis undoubtedly centers in the treatment, for there is perhaps no other disease in the realm of ophthalmology which has been found to be equally resistant to all therapeutic effort. There is scarcely a drug or a measure which could exert any possible beneficial action on the conjunctiva which has not been essayed. On account of the resemblance of the granulations to those of trachoma, treatment which was known to be of service in controlling that form of conjunctival disease has been generally tried, but in most cases the caustics employed were found to aggravate the symptoms, and removal of the granulations by grattage or excision was usually followed by their rapid reappearance. Milder astringents have also been employed, but from the answers which have been obtained, the experience of American ophthalmologists is apparently in agreement with that of foreign authors, that while remedies may be at times of service in relieving acute symptoms, none have been found which exerted a curative influence. Among the drugs which have proven most valuable in alleviating the symptoms and shortening its course, are mentioned weak solutions of silver nitrate, or its substitutes, protargol and argyrol; formaldehyd solution and protargol 4 per cent., hydrastin, holocain, antinosin, solutions of adrenalin chlorid, dilute acetic acid, the chlorid and sulphocarbonate of zinc, ointments of yellow oxid of mercury, of salicylic acid and of lanolin. While the writer is forced to acknowledge the intractability of this disease in many cases, he still believes that there is reason to approach the conduct of cases of vernal conjunctivitis with some confidence of success. In the first place, he would insist upon the value of certain prophylactic remedies which should be applied to the conjunctiva for some weeks or even months before the annual attack in the spring is expected. For this purpose he employs weak astringent washes with occasional massage of the conjunctiva with unguent hydrarg oxid. flav. ( $\frac{1}{2}$  per cent.). Casey Wood massages the conjunctiva with lanolin to obtain the same result. Any constitutional disturbance is corrected and general hygienic measures enjoined, such as out of door exercise and cold bathing. If well borne, arsenic should be administered internally, as a number of foreign observers think they have established the connection between this disease and certain eczematous skin eruptions. If despite these precautionary measures, the symptoms of the disease appear, then if this be the first attack the patient should be advised of the nature of the affection, and should be counseled to restrict the use of his eyes at near work on the days when his symptoms are most intense, and to remain as much as possible in a cool, darkened room, out of the irritation of the sun's rays. Dark glasses should be worn in the light. Iced compresses should be maintained almost constantly, and all lotions which are to be instilled should be iced also. The lids should be anointed from time to time with a salve of the yellow oxid of mercury ( $\frac{1}{2}$  per cent.). A mild antiseptic nasal spray may be employed, but as the writer has not been able to satisfy himself of any causal relationship existing between the irritation of the nasal

pharynx, which is present in most cases, and the conjunctivitis, he does not think any special treatment of the nose or throat necessary. The drugs which are to be employed locally will depend largely on the type of inflammation which the disease assumes; if, as is usually the case, the tarsal conjunctiva is alone affected, and the granulations have not attained great size or density, mild antiseptic washes, either of boracic acid or boracic acid and cocain (acid boracic gr. x; cocain, gr. ii to f.  $\bar{3}$ i) or of bichlorid of mercury (1-5,000) or of dilute acetic acid (gtt. x ad. f.  $\bar{3}$ i), should be used at frequent intervals to keep the eyes clean and freed from secretion. In addition to this, a solution of adrenalin (1-5,000) will be found not only to bring great relief to the symptoms, especially to the itching which is always so troublesome, but to exert a marked influence upon shortening the course of the disease. Weeks has found the insufflation of calomel powder on the palpebral conjunctiva in an extremely thin layer, once in every forty-eight hours, to be of service.

In cases of longer standing, where the granulations are larger, but still flat and not yet of gristly consistency, the same lotions may be continued, but more powerful alteratives should be employed, such as either a solution of corrosive sublimate (in the strength of 1-5,000); massage of the lids with an ointment of yellow oxid of mercury (2 to 4 per cent.), or the application of boro-glycerid and protargol 4 per cent. Suprarenal solution with chloretone, and a solution of formaldehyd and protargol are often of value. The persistent use of weak ( $\frac{1}{4}$  per cent.) solutions of nitrate of silver is of service in this variety also, especially if there be much associated catarrh of the conjunctiva. If the granulations still persist, despite these remedies, recourse should be had to electrolysis or the actual cautery, but excision of the granules by the knife should not, in the opinion of the writer, be performed in this stage, for it is possible, indeed usual, for such granulations, even those of large size, to disappear wholly on the advent of cool weather, and for the conjunctiva to assume a perfectly normal appearance. It does not seem justifiable, therefore, to employ a method of treatment which might produce permanent changes in the lids and lead to troublesome complications. Cauterization of the granulations by strong acids, such as chromic, is also to be deprecated.

In the third variety of the tarsal type, that in which the granulations have become hard and gristly and are rounded, it is better to proceed at once to the removal of such granulations by surgical measures. In this type the granulations persist through the winter, though the subjective symptoms may disappear, and as they occasion a permanent thickening of the tarsus, the scar tissue which is left by their removal is less annoying and disfiguring than the presence of the granulations themselves. The removal of the granulations in this stage is not an easy matter. The roller forceps will be found useless, and it is impossible to express the contents of such a granulation, even after it has been incised; each granulation is really a dense fibrous body, and is best removed by shaving it off even with the conjunctiva by means of a very sharp knife. Massage of the conjunctiva with lanolin or with a salve of the yellow oxid of mercury (4 per cent.) should be steadily maintained after the operation, as it will be found that the granulations will exhibit a tendency to recur; indeed, despite these local applications, repeated removals with the knife will often be necessitated. The prompt surgical intervention in this class of cases is usually followed by the greatest

amelioration in the symptoms; and the ulceration of the cornea, which is not infrequent in this type, from the mechanical pressure exerted upon the cornea by the size and hardness of the granulations, may usually be prevented.

In the ocular type of inflammation, massage of the globe with the yellow oxid of mercury will cause the disappearance of the swellings in many instances, if these be but small; where the granulations are large, frequent insufflations with calomel are of service, but at times the cautery will have to be resorted to. In the associated form, a continuation of the double line of treatment just outlined may be employed, and it will be found that if the granulations on the tarsal conjunctiva be similarly attacked, the changes around the limbus will be seen to disappear *pari passu* with those on the lids.

It is of interest to note that Starr and Bennett, of Buffalo, have obtained benefit from exposure of the conjunctiva to the action of the x-rays.

Although few, perhaps, may be able to take advantage of the benefits which accrue from it, change of climate is of great importance; while, as already stated in an earlier paragraph, it is impossible to ascertain from the answers received to the circular letter whether there was any part of the country which exhibited an absolute immunity against the disease, there is general testimony that cases of vernal conjunctivitis get well quicker in a high, dry, cool climate than under any other conditions. Thus patients do better in the mountains than at the seashore. Though it should be mentioned in this connection that Kipp has found that an ocean voyage removes annoying symptoms.

NOTE.—The complete bibliography of vernal conjunctivitis may be found in the article by Terson appearing in *La Gaz. des Hopitaux*, July, 1898, and in the monograph by Danvers, entitled "Spring Catarrh of the Eyes," and published by J. Bale, London, 1901.

#### DISCUSSION.

DR. JOHN E. WEEKS, New York—I have seen a comparatively large number of cases of this kind, the percentage being greater in the last few years in proportion to the number of cases of eye disease. It is a curious fact in my experience that these cases have occurred among the well-to-do in a proportionately larger percentage than in those whose hygienic surroundings have been less favorable. Children who live in the city during the winter and go to some country home in the summer are those who have furnished the largest number of cases. In my experience children under the age of 3 years seldom present this condition, and I do not think that I have ever seen the onset of the disease after the age of 25 years. I have, however, observed the results of this condition and a continuation of it in adults up to the age of 45 or 50 years.

The striking feature in this disease is the variability in the length of time during which it persists. I have observed it in children from whom it has entirely disappeared after the third summer. I have observed it in other cases in which its recurrence has been noted for at least eighteen years.

There does not seem to be any particular predisposition on the part of the individual to contract the disease; it occurs in the robust equally as often as in those who show evidence of relatively poor nutrition. In regard to locality, I have observed it in those who live near the seashore as well as those who live inland.

In regard to the cause of the disease, I have nothing to offer. It presents many of the qualities of an infectious nature. I have not as yet been able to discover any proof of contagion. I have, however, from time to time, observed it affecting two or three children in one family, but have never observed it in the form of an epidemic. In regard to the comparative frequency with which it affects the sexes, I have seen

it more often in males. Terson (*Annales d'oculistique*, November, 1902) states that in the cases that he observed 85 per cent. were in males.

The disease affects both eyes almost without exception. I have seen involvement of the cornea in some cases, particularly those in which vegetations occur.

As to pathology: vernal conjunctivitis differs from trachoma in that the retrotarsal fold never presents vegetations; in fact it does not appear to be involved, if we except some slight swelling. The minute papillary elevations which occur present a character entirely different from the trachoma follicle. They may be likened to the pile of velvet, perhaps a trifle coarser and shorter. This condition persists in a modified manner throughout the months of quiescence. After some years the papillæ become more or less aggregated and form fungoid elevations. These elevations under the microscope show a condition resembling fibrous papillæ. In some the sections show a great deal of fibrous tissue, the epithelial cells dipping down into it; in others the papilliform arrangement is more marked. The fungoid masses may be very few in number, scattered over the tarsal conjunctiva of the upper lid, or they may be quite numerous and involve the tarsal conjunctiva of both lids. It is at this stage that corneal complications are prone to occur. In this and the early stage, scanty, tenacious, muco-purulent secretion is present. The hypertrophied pericorneal tissue may encroach on the cornea, leaving on subsidence an irregular, opaque annular ring which may reach 2 mm. in width. I have never seen it extend over the entire cornea.

In the treatment of this condition I have found that mild measures serve best. Bathing the eyes with a warm solution of boric acid twice daily and the introduction of a 1 to 1.5 per cent. ointment of the yellow oxid of mercury into the eye once daily, at night, serve to reduce the inflammatory phenomena and to bring about a favorable condition. It has also been my habit to dust calomel on the conjunctival surface after everting the lids, perhaps every second day, putting on a very thin layer of calomel. The fungoid masses may be excised, but they are pretty sure to return in a very short time. However, if they are causing much irritation to the cornea, they should be excised. An attempt to change somewhat the nutrition of the conjunctiva by compressing it between the blades of trachoma forceps is sometimes of service. On the whole, however, mild treatment results in the greatest good to the patient. In regard to the use of cocaine, I would say that in my hands it has not been beneficial. The congestion that follows often prolongs the disease.

DR. HENRY DICKSON BRUNS, New Orleans—In our clinics in this city I have had a good opportunity of comparing diseases of the eye as they exist in the white and negro races. I have just finished the study of 17,000 odd cases, of which 36 per cent. were negroes. Now the point I would like to dwell on is this: I have long paid especial attention to phlyctenular ophthalmia because of its frequency in the negro. The negro is often blinded by the disease, a condition that I have never seen in a white patient. I believe that the elevated ring appearing around the cornea and to a certain extent resembling that seen in spring catarrh, is a phlyctenular phenomenon. I have observed every possible transition type and every possible variety of infiltration. The transient nature of the disease, the readiness with which it seems to yield to simple treatment, is notable; the local application of mercury and internal administration of small doses together with keeping the conjunctiva clean suffice to bring about a cure in a very short time. I have never seen the disease last more than three or four months. If you evert the lid and look for changes you find a conjunctiva smooth, natural and not injected. This is not spring catarrh.

DR. H. GRADLE, Chicago—As far as I am aware, this disease had been described only as circumcorneal tumefaction with occasional changes in the conjunctiva of the lids until called attention in 1884 to the disease limited to the lids without lesion around the cornea. Among some 35 cases seen in Chicago I have found the circumcorneal lesion but twice.



The changes in the conjunctiva are progressive and increase from year to year. During the earlier years they disappear entirely in the winter. Later on both the lesions and the subjective symptoms may not cease entirely during the cold season, although invariably they diminish in severity. I believe I was the first to point out the analogy between spring catarrh and hay fever, both being limited to the warm season and to certain geographical regions. The patient with spring catarrh finds relief as soon as he visits a locality exempt from hay fever. I have seen, however, but one instance of coexistence of spring catarrh and hay fever in the same patient.

May has described the combined occurrence of spring catarrh and trachoma. Personally, I have never seen such a combination. As far as I have seen and learned, a radical distinction between spring catarrh and trachoma is the absolute exemption of the cornea in the former disease. As a rule, too, it is not impossible to distinguish the conjunctival lesions of the two diseases, independently of the history.

In the past two years I have seen at least three instances of conjunctival disease resembling advanced spring catarrh, but without the characteristic periodicity of that disease. These three were all recent affections according to the statements of the patients, but nevertheless they continued with but little abatement after the cold weather had begun. Since close inspection of the conjunctiva excluded trachoma absolutely there has been some doubt in my mind about the diagnosis. These patients, however, were finally cured by the continued use of a suprarenal solution of adrenalin, with the addition of chloretone (0.5 per cent.). In one the lesions and symptoms ceased gradually during the winter. In two others (and perhaps a fourth) the disease subsided gradually during the following warm season on continuing more steadily the same treatment.

Dr. WILLIAM ZEUTMAYER, Philadelphia—I desire to corroborate the observations of Dr. Posey regarding the classification of Dr. Burnett. I have long regarded that clinical picture as a racial type of phlyctenular conjunctivitis. To my mind, in vernal catarrh the most characteristic subjective symptom is itching and objective symptom, non-involvement of the fornix conjunctiva.

Dr. A. R. BAKER, Cleveland, Ohio—I would like to ask Dr. Posey to detail more fully the diagnostic features of this disease. In my practice I seldom if ever make a diagnosis of vernal catarrh. Either we do not have the disease in Cleveland or else I do not recognize it as such. If you call phlyctenular conjunctivitis "vernal catarrh," of course, we have lots of it, but I have not seen such cases as have been described as occurring in Switzerland and in Vienna.

Dr. IRAM WOODS, Baltimore.—I would like to ask about the pathology of the corneal complications in this disease. In Baltimore we see almost exclusively the variety which Dr. Bruns has described. In two cases under my care there have been corneal complications. It was specially noticeable that while the eyes presented appearances of acute inflammation, there was entire absence of the so-called corneal symptoms, photophobia, lacrymation, etc. Yet there was a peripheral ring of corneal opacity, partly hidden in one case by the swollen conjunctival tissue at the limbus. But for the presence of the acute conjunctival inflammation, one would have thought he was studying a cicatrized annular ulcer. With this absence of corneal symptoms it is improbable that we have acute keratitis. Still, the corneal changes are transient and can hardly be regarded as degenerative.

Dr. M. D. STEVENSON, Akron, Ohio—The observation has recently been made that by passing a metallic or glass rod over the conjunctiva itching in the one case or painful sensation in the other would be developed, thus differentiating between vernal catarrh and trachoma. I have sometimes observed the contrary, and consider this statement of little value.

As to the treatment, I would like to mention the use of the x-ray. Dr. Smith of Warren, Ohio, has told me of some cases he had treated between the paroxysms of the disease with the x-ray with very great benefit. In one case he treated the lid that was most affected, and while its appearance changed but

slightly, it did not become inflamed with the beginning of warm weather, while the lid of the other eye did.

Vernal conjunctivitis affects the palpebral conjunctiva chiefly and is often confined to the lids, but seldom to the limbus. True phlyctenulae in phlyctenular conjunctivitis, on the other hand, are nearly always confined to the conjunctiva of the eyeball. I consider these two diseases entirely distinct and that, although not always easy to differentiate from one another, they are usually quite unlike in course and history.

Dr. LOUIS STRICKER, Cincinnati—I would like to endorse what Dr. Bruns has said. I have had much difficulty in making a diagnosis of vernal catarrh, and have restricted the diagnosis to disease of the palpebral conjunctiva, and when I have found it to be a disease of the ocular conjunctiva I have put it down as phlyctenular conjunctivitis, and I treat these cases by internal medication only, with no local applications. I look on it as a peripheral neuritis, a result of toxemia from the intestinal tract. I do not believe there is a vernal catarrh of the ocular conjunctiva.

Dr. HAROLD GIFFORD, Omaha—It seems unfortunate that there is a tendency to confound ocular vernal conjunctivitis with phlyctenular conjunctivitis. They are as distinct as they can be. As to its occurrence in the negro, I think Dr. Bruns said he had never seen a case in a negro; is that correct?

Dr. BRUNS—Yes.

Dr. GIFFORD—I have seen it in a perfectly characteristic form in two negro girls. There was no question of its being phlyctenular conjunctivitis, although the severe forms of phlyctenular conjunctivitis are common in negroes in our vicinity, as Dr. Bruns says.

In regard to the time it occurs, I think we are sometimes mistaken as to its occurring in life, being led to that idea by defective history on the part of the patient. I have seen the trouble crop out after many years of apparent freedom from it in patients I just happened to know had it when 8 to 12 years old. We sometimes see mild forms in children, which fade away, but during a very hot season crop out again, developing perfectly characteristic symptoms.

Another point is in regard to the one-sided cases. I think they are like the one-sided cases of trachoma; cases where they have had it in both eyes and have gotten over it in one. I have followed one such case, where a boy of 5 came to me with vernal catarrh of both eyes. I lost track of him, and after five years he came back with one eye practically normal and in the other a severe form of palpebral vernal conjunctivitis, as severe as I have ever seen. In this case vision was reduced to 20/200 in the affected eye, and, although it would improve under treatment, it would go back with sight greatly reduced, and finally I excised the conjunctiva of the upper lid and replaced it with an epithelial lip-flap. I think that is the only successful operative treatment.

Dr. J. H. CLAIBORNE, JR., New York—I think I can array myself on the side of those who have seen vernal catarrh. I have never seen it in the negro, however, although I lived in the south before going to New York. I have seen it in New York City. We find it often in cases of good standing in life rather than in the lower classes, and I know of several cases where it repeats itself every year, and where it is restricted to the ocular and not to the palpebral conjunctiva. I have had the best results with the use of nitrate of silver and atropin and adrenalin combined. I should like very much to see the type Dr. Bruns refers to, and will certainly avail myself of the opportunity if I may.

Dr. ROBERT L. RANDOLPH, Baltimore—In regard to the treatment, some five years ago I thought I had discovered what was almost a specific in the use of strong ointment of salicylic acid, but since reporting five cases I have seen two in which it failed. I start with an ointment of 1 per cent. and increase it up to as much as 80 grains to the ounce, or 16 per cent. In the cases of my original report the vegetations were pronounced on the upper lids, and I found with the use of the strong ointment that the vegetations disappeared, leaving a clean conjunctiva. I have since then, however, met with a

case in which the ointment had no effect whatever. It seems to be a trustworthy treatment in the cases of ocular vernal catarrh, but less so in the palpebral form. I have never entertained the idea for a moment that the disease was of bacterial origin.

DR. E. P. MORROW, Canton, Ohio—Dr. Baker spoke of never seeing these cases of vernal catarrh. I have seen a number of cases and am only sixty-three miles south of him. In treatment, the salicylic acid ointment, just spoken of by Dr. Randolph, has given me the best results. The strength I have used has been from 5 to 10 grains to the ounce. The intense itching complained of by these patients is entirely relieved by the application of ice cloths, the method of applying them being the same as employed in purulent conjunctivitis. I believe that this tends also to shorten the disease.

DR. WM. CAMPBELL POSEY, Philadelphia—As to the occurrence of the disease in different parts of the United States: Men who have lived in Maine many years have told me that they had never seen a case there, and I have had an opportunity of personally observing that one case at least who presented very marked symptoms in Philadelphia was immediately benefited by a change of residence to Mt. Desert Island.

It is only in the cases where there are the hard, rounded granulations on the lids that the diagnosis is difficult, and in those the absence of pannus and the history will generally suffice to differentiate them from trachoma. I have observed a number of cases of vernal conjunctivitis in negroes, both of the palpebral and ocular forms, but I believe that most of the cases referred to by Burnett are of phlyctenular origin. In conclusion, I would like to call attention to the employment of the x-rays in the treatment of vernal conjunctivitis, especially since I have just received a letter from Dr. Bennett of Buffalo, in which he states he has had most excellent results in one case from this method.

## Clinical Report.

### A CONGENITAL SACRAL TUMOR.

RICHARD T. HENDERSON, M.D.

URBANA, OHIO.

*History.*—I was called, April 10, 1903, to see Mrs. L., a medium-sized woman, apparently healthy, aged 30. She was the mother of two children, the younger being 2 years old; she had never had any sickness since the diseases of childhood. Her family history was good. She was at about the seventh month of gestation.

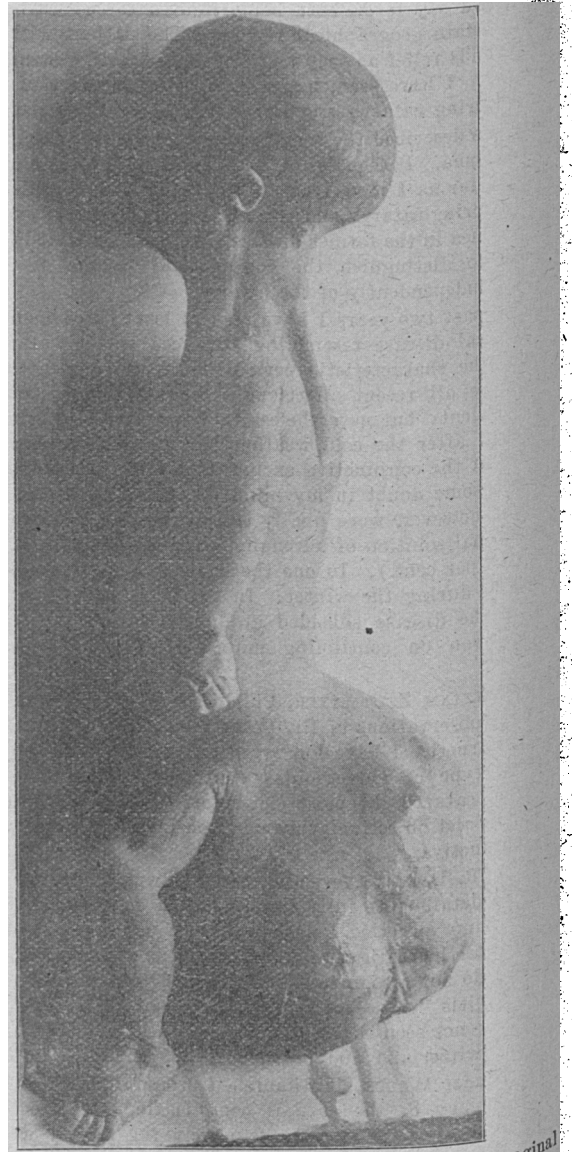
*Examination.*—Her excessive abdominal enlargement was double that of any woman I had ever seen at full term. Palpation was impossible, as the slightest pressure caused excruciating pain. She was unable to assume the recumbent position owing to dyspnea.

*Labor.*—After being called once by a false alarm, I found her in labor April 20, the contractions being short and of not much force, though she said she had been in labor for five hours. Dilatation had taken place to the size of a silver dollar. Three hours later there was more dilatation. The contractions, however, seemed to be on the wane, though the woman was not in the least exhausted. After twelve hours of labor, the contractions becoming weaker and weaker and the intermissions more and more prolonged, I ruptured the membranes. A flood of water, at least five pints, passed at once. With a few strong contractions the head was now born, with the cord wrapped around the babe's neck. There everything stopped. After loosening the cord (in which I found no pulsation). I waited one-half hour for a return of contractions, but as none occurred, I began gentle traction. This caused such agony that I was forced to desist. I anesthetized her completely and easily delivered the shoulders, but was unable to accomplish anything further. I introduced my hand and found what I took to be the buttocks of another child, but was soon surprised to find this mass firmly attached to the buttocks of the half-born babe. I then drew down both feet and began traction. After fully thirty minutes' traction the tumor

was delivered, followed by a quart of water. The third stage was normal.

The tumor was located on the sacrum and coccyx, and was 18½ inches in circumference.

The woman rallied slowly, then did very well for six days. On the sixth day she had a chill and a temperature of 100.



After treatment by the administration of quinin and by vaginal and intrauterine irrigation the temperature returned normal and the patient recovered her usual health.

*The County Society the Unit.*—A year's work under its new constitution and by-laws has shown where certain changes are imperatively necessary to the proper and successful carrying out of the society's work in harmony with the American Medical Association. The existence of "members at large" is in conflict with the spirit, if not, indeed, with the law of the A. M. A. and all such "members at large" should be obliged to join their county societies. It is the county society that is the fundamental unit of organization—properly so—and all licensed and reputable physicians should belong to this fundamental organization. Anything other than this would be as inconsistent as permitting a man becoming a member of the Knights Templars without being a member of a "blue lodge." The illustration cited is further apropos, for the whole plan of reorganization of the A. M. A. is merely an adoption of the general fraternal society plan. Therefore, we would say to all members at large, "Join your county society, or the county society nearest to your home, if there is none in your own county." *California State Jour. of Med.*