

	Beds.	Staff.
Bristol :		
Royal Infirmary ¹	8	.
Cardiff :		
Royal Infirmary	10	.
Glasgow :		
Western Infirmary	12	.
Ear and Throat Hospital	12	.
Royal Infirmary	20	.
Dundee :		
Royal Infirmary	10	.
Aberdeen :		
Royal Infirmary	8	.

In addition to the above there are a large number of special clinics at general hospitals and several special hospitals in various cities and towns which are not associated with universities.

P. W. W.

THE INTERNATIONAL COLLECTIVE INVESTIGATION OF OZÆNA (SECOND NOTICE).

BY A. BROWN KELLY, M.D., D.Sc.,
Glasgow.

IN the April number of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, it was shown that certain fundamental questions regarding ozæna were still unsolved, and likely to remain so unless studied by means of an international collective investigation. The proposed method of organizing such an investigation and the initial steps that had been taken to secure workers throughout the world were briefly outlined. We now desire to report regarding the progress made during the past six months, and more particularly to indicate the scope of the examinations about to be instituted of subjects of ozæna.

In Germany the investigation has been very thoroughly organized, a host of rhinologists have expressed their willingness to assist, and permission has been obtained to carry out examinations in a large number of institutions. We have to record with deep regret the sudden death in July of Professor Albert Rosenberg, whereby the Central Committee in Berlin has lost a valued colleague, and not a few of us an old teacher and good friend.

In the United States an Executive Committee has been

¹ At the General Hospital and Royal Children's the departments are in charge of general surgeons.

appointed, consisting of the national organizer and representatives from the three principal laryngological societies, organizers have been chosen for the different States, and the co-operation of the Government Department of Public Health and Marine Hospital Service has been requested.

In all the countries of Europe, in Algeria, Asia Minor, Chili and Japan, notable progress has been made with the necessary preparations.

The appeal for co-operation has met with a gratifying response in the British Empire, as is evident from the large and representative body of organizers; those in London were appointed by the Laryngological Section of the Royal Society of Medicine. Additional assistance abroad is needed in order that the disease may be studied in native races in different parts of the world. The writer, therefore, will be pleased to receive the names of medical men resident in the Colonies, and especially in India, who are qualified to engage in this research, in order that their services may, if possible, be secured.

The expenses of the investigation in this country will be considerable; towards defraying certain of these the Carnegie Trust has kindly promised a grant. We are thus enabled to supply gratis the schedules and other printed matter; for the former a charge is made in Germany. The sum at our disposal is insufficient, however, to pay for postages or for special examinations (Wassermann, bacteriological, etc.). Those desirous of being reimbursed for extra outlays are recommended to apply to corporations, authorities or others having funds available for scientific research.

A small guide has been prepared for those taking part in the collective investigation in the British Empire. It contains information and instructions as to the appointment of organizers and committees, the arrangements to be made for the examination of school-children and other classes of persons, the drawing-up of family tables, the investigation of the early stages of ozæna, the questions to be determined in cases of ozæna, and at the *post-mortem* examination of ozænatous subjects; a specimen letter to a school board requesting permission to examine the scholars and the outline of a newspaper article on the investigation are also included.

The scope of the report sheet and of the scheme for the necropsies were decided upon by the Central Committee after careful deliberation. These, with some excerpts from the pamphlet, should prove of interest to rhinologists, and are therefore subjoined.

CHIEF AIMS OF INVESTIGATION.

(1) To determine the frequency and distribution of ozæna, for which purpose school-children and inmates of various institutions will be examined, and the results recorded in enumeration and report sheets. (2) To study the part played ætiologically by heredity and infection respectively, as revealed by the report sheets and family tables. (3) To trace the disease to its onset and gain a knowledge of its early stages by the examination of infants. (4) To study the pathology of the affection by arranging for the systematic examination during life and after death of subjects of ozæna suffering from a fatal malady, and to report the results in accordance with special instructions supplied. In the course of the investigation the desirability of clearing up other points will doubtless arise. It should be understood, however, that the collective investigation will deal solely with questions which cannot be settled by the limited material at the disposal of single individuals.

EXAMINATION OF SCHOOL-CHILDREN.

School-children will form a large part of the material utilised in this investigation. The enumeration sheets have spaces for sixty scholars. On them are noted—the school, class, and teacher: the scholar's name, address, place of birth, and date of birth; and the presence of ozæna or doubtful ozæna. The non-ozænatous children are dismissed immediately after the examination, while those with ozæna or doubtful ozæna are examined fully in accordance with the report sheet, and a table of their family constructed.

FAMILY TABLES.

The ozæna material furnished by the schools will not be conclusive as to the disease in an advanced form, for the children of the poorer classes leave school as a rule about the time of puberty. It will be of value, however, if a family table is drawn up and the individual members examined. We thus come to know of the presence of ozæna in the parents, and in the brothers and sisters who have left school. In these family examinations we shall frequently meet with cases of latent ozæna, in which atrophy, crusting, and fœtor are very slightly marked, and the true significance of which is recognised only because they are found in a family having one or more members with undoubted ozæna.

On the other hand, in the examination of scholars, etc., the cases suspected of having ozæna are to be tested as to their true character by the examination of other members of the family. The family table thus becomes the central point of the inquiry.

From the family table of patients with pulmonary tuberculosis we shall learn how many members of the same family have phthisis, how many ozæna, and how many of those with ozæna have also phthisis. The information so obtained should throw light on the relations of ozæna to pulmonary tuberculosis.

THE INMATES OF ORPHANAGES, INSTITUTIONS FOR BLIND, DEAF-MUTES, AND THOSE WITH PULMONARY AFFECTIONS, HOSPITALS, ASYLUMS, HOMES FOR INCURABLES, WORKERS IN FACTORIES, SOLDIERS, TRADESMEN, ETC.

The same method, by means of enumeration and report sheets, is to be adopted in the examination of these as for school-children.

INVESTIGATION OF EARLY STAGES OF OZÆNA.

In order to become acquainted with the symptoms that ozæna causes at its onset, all children having a nasal discharge from birth or from the period of suckling are to be examined. The material for this part of the investigation will be found in the children's wards of hospitals, homes for infants, crèches, foundling homes, asylums for children, dispensaries for the diseases of children, lying-in and maternity hospitals, etc. The examinations are to be conducted uniformly, so that the children indicated (1) undergo the Wassermann test, (2) have the nasal secretion examined for gonococci, and (3) in cases of chronic nasal discharge falling under neither of these groups, *i. e.* those in which nasal syphilis and nasal gonorrhœa have been excluded, be submitted to a careful clinical and bacteriological examination. The bacteriological investigations are to be carried out by specially trained workers, employing recognised methods. Some authorities maintain that at present it is impossible to identify with certainty a diplococcus found in the nasal secretion as the gonococcus; all that bacteriology can show is that it is a diplococcus belonging to the same group as the gonococcus. In these cases we must endeavour to arrive at a positive diagnosis by examination of the vaginal secretion of the mother.

We are still ignorant as to whether ozæna at its onset is accompanied by a nasal discharge. We must therefore make a rhinoscopic examination of all the newly born children—whether they

have a nasal discharge or not—in the families that the collective investigation shows to be ozænatous; if nasal discharge is present it must also be examined bacteriologically.

Further, we do not know if ozæna occurs congenitally, or, as seems probable, develops only in later years. In the latter case the family table again comes to our assistance if we make it a rule to record the nasal conditions in all the young members of a family in which ozæna exists, whether or not we are suspicious of their having ozæna. The school doctors should be able to arrange for the periodical examination of such children.

Syphilitic children with nasal discharge are to be kept under observation, suitable specific treatment being of course adopted, so that the ultimate effect on the nose may be determined.

REPORT SHEET.

I.—*General.*

*Country			
*Town	*Name in full		
*School	*Sex	*Religion	*Nationality
*Class	*Age	years; born on	
*Birthplace of parents	*Address		
*(a) Father	*Birthplace		
*(b) Mother	*Later place of residence		
*Occupation of parents			

II.—*Clinical History.*

- *(1) When did the nasal affection begin?
- *(2) What symptoms appeared immediately after birth?
- *(3) Which children's diseases, especially infectious diseases, has the patient had?
 - (4) Did the child suffer from conjunctivitis? When?
 - (5) Natural or artificial rearing.
 - (6) Condition, size and cleanliness of dwelling.
 - (7) Food supply of family and child.
 - (8) Clothing, care of body and teeth.

III.—*General Bodily Condition.*

- (1) General appearance of child (size, development, state of nutrition, etc.).
- (2) Carriage (shape of thorax).

* These questions are obligatory; the others are optional.

- (3) Circulatory system—(a) Symptoms (hamorrhages, palpitation, etc.).
 (b) Examination of heart and vessels.
- *(4) Respiratory system—(a) Symptoms (frequent catarrh, etc.).
 *(b) Examination (especially as to presence of tuberculosis).
- (5) Nervous system—(a) Symptoms.
 (b) Examination (chorea, tetanus, convulsive tic).
- *(6) Bony system (rickets, tubercular disease of the bones, etc.).
- (7) Cutaneous system (lupus, eczema, etc.).
- *(8) Constitutional diseases—(a) Syphilis: Wassermann's reaction.
- Repeated miscarriage of the mother.
 Infantile mortality in the family.
 Bodily condition of brothers and sisters alive.
 Constitution and aspect of the patient.
 Infantilism.
 Scars on skin and mucous membranes.
 Malformations of the skeleton.
 Thickenings of the tibia.
 Repeated swellings of the knee-joints.
 Interstitial keratitis or other ocular affections.
 Ear disease.
 Malformation of the teeth.
- (b) Exudative diatheses (glandular swellings, inflammation of eye, discharge from ear).
- (c) Organs with internal secretion (thyroid gland, pancreas).
- (9) Examination of the urine.
- (10) Condition of the blood.
- (11) Examination of nasal secretion (microscopic, chemical, bacteriological).

IV.—*Conditions Found in the Upper Air-passages.*

- *(1) Patency of the nose (degree)—note Right. Left.
 presence of crests and deviations.
- *(2) Condition of the inferior turbinates.
- *(3) Condition of the middle turbinates.
- (4) Thickness of the mucous membrane including that of septum.
- *(5) Crusts or secretion (site, appearance).
- *(6) Intensity of fetor (before and after removal of crusts).

- (7) Sensitiveness of nasal mucous membrane.
 (8) Sense of smell.
 *(9) External nose (if possible photograph of full face and profile).
 (a) Shape.
 (b) Condition of skin.
 (10) Upper jaw (shape).
 (11) Hard palate (form).
 (12) Arrangement of teeth.
 *(13) Pharynx and naso-pharynx.
 *(a) Condition of mucous membrane.
 *(b) Faucial tonsils.
 *(c) Pharyngeal tonsil.
 *(d) Lingual tonsil.
 *(14) Larynx and trachea.
 (15) Measurement of skull.¹

$$(a) \text{ Cephalic index} = \frac{100 \times \text{maximum breadth}}{\text{maximum length}} = \frac{100 \times \dots}{\dots} =$$

$$(b) \text{ Superior facial index} = \frac{100 \times \text{superior facial height}}{\text{Bi-zygomatic width}} = \frac{100 \times \dots}{\dots} =$$

$$(c) \text{ Nasal index} = \left\{ \begin{array}{l} \frac{100 \times \text{nasal breadth}}{\text{nasal height}} = \frac{100 \times \dots}{\dots} = \\ \frac{100 \times \text{nasal height}}{\text{nasal breadth}} = \frac{100 \times \dots}{\dots} = \end{array} \right.$$

- (16) Measurement of palate.

$$(a) \text{ Index of height and breadth of palate} = \frac{100 \times \text{height of palate}}{\text{breadth of palate between first molars}} = 100 \times \frac{100 \times \text{height of palate}}{\text{breadth of palate between first bicuspids}} = \frac{100 \times \dots}{\dots}$$

$$(b) \text{ Index of breadth and length of palate} = \frac{100 \times \text{breadth of palate between first molars}}{\text{length of palate}} = \frac{100 \times \dots}{\dots} =$$

- (17) Measurement of septum.
 (a) Distance from point of nose to posterior pharyngeal wall.
 (b) Distance from point of nose to posterior edge of septum.

V.—Complicating Affections.

- (1) From the naso-lacrimal canal and eye.
 (2) From the ear.
 (a) Chronic Eustachian catarrh with retraction.

¹ The method of making these measurements is described in the pamphlet of instructions.

- (b) Chronic middle-ear suppuration (central or peripheral perforation ?)
 - (c) After effects of chronic middle-ear suppuration (central or peripheral perforation ?)
 - (d) nerve deafness (normal or altered tympanic membrane ?)
- (3) From the accessory cavities of the nose.
- (a) Clinical condition.
 - (b) Transillumination.
 - (c) X-ray examination.

VI.—*Heredity or Infection.*

- * (1) Patient is the child of a family of brothers and sisters; of these are alive. Is patient the only child ?
- * (2) Diseases and causes of death (special inquiry as to tuberculosis) in parents, brothers and sisters.
- * (3) Have members of the family slept together in the same bed ?
 - (a) Which ?
 - (b) To what age ?
- * (4) Family tree (it is particularly requested that this be worked out as carefully as possible).

POST-MORTEM EXAMINATIONS.

In hospitals, workhouses, etc., arrangements are to be made whereby cases likely to die soon are to be notified without delay to an organizer. The latter then makes a rhinoscopic examination, and if ozæna is found fills a report sheet while the patient is still alive. When death takes place the body is sent to the pathologist, with a notice as to the existence of ozæna, and the *post-mortem* examination is carried out in accordance with the special instructions (*vide infra*), in presence of the doctor who made the rhinoscopic examination. Owing to the frequent difficulty of expressing an opinion as to the presence of atrophy in the nose after death, it is only in some such way as indicated that the value of the *post-mortem* material can be assured. To obtain this material is one of the most important aims of the investigation, as it would assist in settling, amongst other questions, the part played ætiologically by the accessory cavities, and the mode of involvement of the cranial bones.

SPECIAL POINTS TO BE NOTED IN THE POST-MORTEM EXAMINATION OF
SUBJECTS WITH OZENA (ABSTRACT).

A. *External Inspection.*

- (1) *External signs of syphilis.*
- (2) *Palpation of the glands*, especially in the neck and at the angle of the jaw.
- (3) *Determination of the shape of the skull*¹ by comparison of greatest transverse and longitudinal diameters.
- (4) *Determination of the form of the upper part of the face* (the mandible is left out of account) by comparing the bi-zygomatic width with the superior facial height.
- (5) *Inspection of the external nose* to determine especially changes in shape. If these are marked, the full face and profile should be photographed, or better, a plaster cast of the face should be prepared.
- (6) *Determination of the nasal index* by comparison of nasal breadth with nasal height.

B. *Organs in the Neck.*²

- (1) *Incision of the skin* according to the method of Beneke.
- (2) *Inspection of the thyroid and parathyroid glands.*
- (3) *Inspection of the lymphatic glands* through which the lymph from the interior of the nose must pass.
- (4) *Inspection of the sympathetic chain, and of the cervical ganglia of the sympathetic.*
- (5) *Removal of the intact larynx* together with the tongue, pharyngeal mucous membrane and œsophagus (in the usual manner).
- (6) *Separation of the lower jaw* by Beneke's method.
- (7) *Determination of the shape of the hard palate* by comparison of its breadth, height and length.
- (8) *Determination of the shape of the hard palate and dental arch* by preparation of wax or plaster cast.
- (9) *Condition of the teeth and their relative positions.*

¹ The methods of making all the measurements required are fully described in the pamphlet.

² The organs in the neck must first be dissected out, otherwise there will not be room to use the saw for the removal of the internal nose by Schalle's or Orth's method.

(10) *Inspection of the canine fossa and of the fronto-nasal process of the superior maxilla.*

(11) *Preparation of a cast of the naso-pharynx by means of Stent's modelling composition according to Hopmann's method.*

c. Cranial Cavity.

(1) After turning back the soft tissues covering the head *the condition of the flat bones of the skull, the fontanelles and sutures* is to receive attention.

(2) *Section of the brain* (contents of ventricles, hypophysis, medulla oblongata).

(3) *Sagittal section of the base of the skull* by Harke's method, with preservation of nasal septum as far as possible.

(4) *Determination of the following measurements :*

(a) Height of skull; from the middle of the anterior margin of the foramen magnum to the vertex at right angles to the horizontal plane.

(b) Length of base of skull; from the middle of the anterior border of the foramen magnum to the middle of the fronto-nasal suture.

(c) From the middle of the anterior border of the foramen magnum to the middle of the dorsum ephippii.

(d) From the middle of the anterior border of the foramen magnum to the tuberculum sellæ turcicæ.

(e) From the middle of the fronto-nasal suture to the tuberculum sellæ turcicæ.

(f) From the middle of the fronto-nasal suture to the dorsum ephippii.

(g) The distance from the point of the nose to the posterior pharyngeal wall.

(h) The distance from the point of the nose to the posterior edge of septum.

(i) Height of nasal septum vertically from the crista galli.

(5) *Determination of the condition, length, and breadth of the nasal bones.*

(6) *Examination of the contents of the frontal and sphenoidal sinuses.* Inspection of the lining mucous membranes.

Preservation of lining membrane of the frontal sinus for microscopic examination.

(7) *Description of state of the naso-pharynx* and of the adenoid tissue there. Condition of the faucial tonsils.

(8) *Removal of the nasal fossæ* by sawing after preliminary detachment of the nasal septum by Schalle's method, or by the simpler method of Orth. According to the latter method a long thin-pointed saw is used. The base of the skull is sawn through, beginning about the middle of the clivus (clivus Blumeubachii is the basilar groove on the sphenoidal and occipital bones extending from the dorsum sellæ to the foramen magnum) and carrying a curved line of division on each side with the convexity directed outwards through the inner portion of the temporal bone, the middle fossa of the skull, the small wing of the sphenoid, and the inner part of the orbit as far forward as possible. As soon as the hard palate is reached care must be taken to keep behind the teeth. If the ear is to be examined it should be removed in the usual manner. The organs removed, after decalcification, should be cut in serial sections, as a survey of the entire process and of any localised disease is only thus discoverable. Frontal sections of the entire ethmoid afford only doubtful information as to the implication of this bone in the diseased process.

Before decalcifying the preparations it is advisable to inspect and prepare the tube and adjacent parts by Schalle's method.

D. *Thorax.*

(1) *The cartilaginous and bony parts of the ribs* are to be examined for special changes. It may be advisable to retain portions for microscopic examination.

(2) The condition of the *thymus* is to be taken into account.

(3) In examining the lungs, attention is to be directed to the *mucoous membrane and cartilage of the larger and smaller bronchial branches*, with the object of determining their implication in the ozenatous process.

E. *Abdomen.*

Special attention is to be directed to the condition of the pancreas.

F. *The Long Bones.*

Macroscopic and histological examination of the marrow.

G. *Spinal Cord.*

The cervical and thoracic portions to be removed and examined.

A *post-mortem* examination is only of value when (1) the diagnosis of ozena was made during life, and (2) syphilis was

excluded by the history, clinical examination and Wassermann's reaction.

The necessary examinations in Section A (External Inspection), can be made for the most part during life. It is also desirable to take a radiograph of the accessory cavities before death, for comparison with the condition found at the post-mortem.

The questions in the *post-mortem* report aim at determining whether ozæna is as purely localised as we generally conceive it to be; they also direct attention to the study of the glands with internal secretion; finally they deal with the central nervous supply of the upper air-passages, which, together with the lymphatics, have rarely been made the subject of special study in relation to ozæna.

PERMISSION TO PUBLISH RESULTS.

Those desirous of publishing an account of their results, or of special points they may have found or worked out in the course of the investigation, are at liberty to do so. The Central Committee would be pleased to obtain copies of any such papers for incorporation in their general review of the results of the collective investigation.

RESECTION OF THE PARTIAL NASAL SEPTUM FOR DOUBLE SPHENOIDAL SINUS SUPPURATION.

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It is relatively easy to make a free opening into a sphenoidal sinus by the removal of the anterior wall, including the outer portion, which corresponds to the posterior ethmoidal cells; the difficulty is to prevent the opening re-closing to such an extent that secretions within the sinus do not drain out freely. To overcome this tendency to re-closure we may remove the anterior part of the sinus floor. But in some patients, particularly where the sinus cavities are small, the bone of the floor is thick, and even when this is removed the cavity is small and tends to contract. When both sinuses are diseased I have found that the most satisfactory and certain way to ensure a permanent free opening into the sinuses is to remove the posterior half inch of the upper part of the