mucous membrane, and the important neighboring parts. Obstructions in the upper portion of the pharynx may be extracted with the finger, or when farther down with curved forceps adapted to the purpose.

Among the instruments that are used for pushing foreign bodies into the stomach the *probang* is the best. It consists of a thin strip of whalebone with a piece of sponge attached firmly to one end. It is carefully introduced and moved slowly downward, until the foreign body is reached and dislodged. Elastic bougies or catheters are used in the same manner. When needles or pins become impacted in the canal, an elastic catheter having a skein of silk fastened in the eye may be introduced until it passes below the obstruction; it is then drawn up, entangling the needle or pin in the meshes of the silk (*Gray*).*

A very ingenious instrument has recently been employed by surgeons in this city, for the removal of foreign bodies. It consists of a gum catheter, from which the end has been cut, a thin piece of whalebone several inches longer than the catheter, and a number of bristles. The whalebone is made to slide readily up and down inside the catheter. The bristles are attached by an extremity to the end of the whalebone, which protrudes from the catheter; the other is fastened around the open end of the catheter. When the whalebone is pushed out through the catheter as far as possible, the bristles surround the whalebone very closely and compactly. The instrument in this condition is then carried below the obstruction, and the catheter firmly held, while the whalebone is drawn up within it. This causes the bristles to double up in the centre, and protrude

* Article Foreign Bodies, Holmes's Surgery, vol. ii., page 325.

all around in such a manner, that when the instrument is withdrawn it carries the foreign body with it.

When foreign bodies are not removed, they produce ulceration and suppuration of the parts pressed upon, and other organs become involved. If milder methods fail, we must resort to *œsophagotomy*.

The operation should be performed on the side occupied by the foreign body, or, if this cannot be determined, the left side must be selected, because, in the neck, the œsophagus inclines to the left of the median line, and is therefore more easily reached.

After the patient is fully under the influence of an anæsthetic, the shoulders are raised, the head turned to one side, and an incision is made along the inner border of the sterno-mastoid muscle, commencing on a level with the upper border of the thyroid cartilage, and extending down about four inches, cutting through the integument and platysma-myoides muscle. The omo-hyoid muscle is then exposed, and must be either cut or pushed aside. The sheath of the carotid vessels comes next in view, and is drawn outward and retained by an assistant while the thyroid gland and trachea are moved slightly inward. A bougie is now passed down the throat, and protruded below so as to bring the œsophagus fully to view in the wound. An opening is then made, through which the foreign body is extracted.

The patient should be fed daily through a tube for two or three weeks after the operation, in order to give the œsophageal wound time to heal.

Foreign Bodies in the Nose.—Children of tender years are particularly liable to this accident. It is of frequent

occurrence, but happily there is more inconvenience than danger attending it.

Peas and beans in the nasal cavities are specially troublesome; they enlarge in size by their absorption of moisture, and by an increase of pressure cause greater irritation. Peas and beans have been known to sprout in the nasal cavities after having remained there for several days, giving rise to serious inflammation of the mucous membrane and spongy bones.

Treatment.—Having by careful examination determined which nostril the obstruction is in, snuff or other sternutatory may be introduced into the opposite nostril, in order to induce sneezing. This procedure will probably dislodge the foreign body. In place of this, a stream of water, carried into the nostril by means of "Thudicum's nasal douche," may wash out the material. When simple measures like the foregoing are found useless, the forceps must be employed. The long curved forceps used for the extraction of polypi may be tried. The instrument is passed up carefully to the foreign body, closed upon it and drawn down. In all cases care should be taken that the substance is not forced back through the posterior nares into the throat, or that the efforts at extraction are not carried to such a length at one sitting as to fatigue the child, or cause inflammation in the organ.

Foreign Bodies in the Ear.—The length of the external auditory canal is about one inch and a quarter, and at its inner extremity is the membrani tympani, a delicate membrane which separates the middle from the external ear. Across the middle ear are stretched three small bones connected externally with the membrani tympani,

and, through the foramen ovale, on the inner wall with the internal ear.

Foreign bodies in the external ear, in consequence of their close proximity to important and delicate structures, may produce grave and even fatal results. The inflammation usually excited by their pressure may extend to the membrani tympani, destroying it and causing deafness. It may pass on to the middle ear, involving the temporal bone, giving rise to caries and abscess, and may even reach the brain, exciting fatal meningitis or abscess in the middle lobe of the cerebrum. Sometimes efforts at extraction cause permanent deafness by rupturing the tympanum.

Grains of wheat, corn, seeds, and also insects, such as bugs or fleas, have been found in the auditory canal. Insects cause great irritation, but their removal is not attended with difficulty. Accumulations of wax of any great quantity may cause distress.

If the body is large, there is considerable pain and singing in the ear, and more or less deafness is experienced. If it is allowed to remain in the canal, there will be in the course of twenty-four to forty-eight hours a discharge from the meatus, which soon becomes purulent and mixed with blood.

Small substances do not excite inflammation so rapidly, but are often as difficult to extract as large bodies. Insects create an itching in the canal, and a loud rattling or grating noise, excessively annoying to a nervous individual.

Treatment.—Insects are removed by closing up the external meatus, or as much of the canal as possible, and preventing the admission of air. This is best done with a

piece of "cotton-wool," thoroughly saturated with a strong solution of common salt or vinegar, and sufficiently large to plug the orifice completely. After its introduction turn the patient on the affected side, and allow the hand to press firmly on the ear. In a few minutes the noise and irritation will cease, and, if the plug at this time be withdrawn, the insect will probably be found partially embedded in its substance.

To remove small bodies, a stream of water may be thrown gently into the canal, or a scoop and bent probe may be used. The scoop should be introduced into the *upper* part of the canal, so that, in pressing on the foreign body, the edge of the instrument will recede, instead of pressing against the membrani tympani, as it undoubtedly would if inserted below. Great care must be observed in the employment of these instruments, and very little force should be exerted through them.

If it is found impossible to remove the obstruction by these means, the canal must be syringed gently twice each day with warm water, until all inflammatory symptoms have subsided. In the majority of cases the foreign body will come away in the purulent discharge.

Foreign Bodies around the Eye.—Sand, broken eyelashes, cinders, etc., often lodge under one of the lids, usually the upper lid. If these substances remain, inflammation of the *conjunctiva* will be established, and ulceration set up around them.

Treatment.—Hairs which have become fixed in the conjunctiva should be extracted with forceps. To do this, the lid is everted, and the eye cleansed of any effusion which may have collected around the hair; the latter is then readily

removed. For the extraction of dirt, sand, etc., the following simple proceeding will answer: Grasp the upper lid between the thumb and forefinger, lift it from the eyeball and draw it forcibly down, outside of the lower lid. When stretched as far as possible, allow it to slide slowly back to its natural position, touching its fellow as it goes up, then wipe the edges with a handkerchief so as to remove the foreign body from the lashes. The operation can be repeated three or four times, or oftener, without injury. Some use a small scoop made from wire, which is moved around under the eyelid from one canthus to the other.

Foreign Bodies in the Urethra and Bladder. — In many cases this occurrence depends on unnatural or uncontrolled desires which seek relief in local irritation and excitement. The most astounding means are resorted to for this purpose. Slate-pencils, hair-pins, knitting-needles, wire, pieces of wood, leather strips, straw, tobacco-pipes, etc., are among the long list of articles which have been extracted from these organs.

Prof. James R. Wood has in his collection a thick leather thong, with a large knot at its extremity, which a patient of his was in the habit of introducing into the urethra. On one occasion the knot passed beyond the sphincter muscle, and was forcibly held. It had to be removed by an operation.

However, there are other means by which foreign bodies become lodged in the urethra and bladder. In the dilatation of a stricture with elastic bougies, or while using a catheter, the instrument may break, and the pieces remain impacted.

After remaining a certain length of time in the bladder,

foreign bodies become encrusted with various salts, and grow larger by deposit. Such an occurrence is attended with all the symptoms and dangers of stone. In the urethra they may cause inflammation and sloughing of the mucous membrane, and subsequent stricture.

Treatment.—Extraction is necessary in all cases. When impacted in the male urethra, the removal may be effected by a forceps adapted to the canal. If this fail, urethrotomy must be performed. Foreign bodies in the male bladder are sometimes broken up with a lithotrite; but in most cases perineal section (*see* page 61), or some of the operations for stone, are usually made. Substances may be taken from the female bladder with a forceps. The urethra in females is very short and easily dilated, so that the introduction of a forceps or other instrument is accomplished without difficulty.

Foreign Bodies in the Rectum is a rare accident. Falling on the rung of a chair, or on fence-spokes, may result in a portion of these materials entering the rectum. The principal danger is from laceration of the bowel, uterus, or bladder. Death usually follows rupture of the latter organ.

The treatment consists in keeping the bowels quiet, relieving pain by opiates and warm fomentations to the abdomen and anus. If the mucous membrane is torn to any extent, and the injury will admit of it, the parts may be drawn together with sutures.

CHAPTER VIII.

BURNS AND SCALDS.

Varieties of Deformities produced by Burns.—Spontaneous Combustion.—Classification of Burns.—Constitutional Symptoms.—Duodenal Ulcers.—Causes of Death, etc.—Effects of Cold.—Frost-Bite.

There are few accidents which combine so many unnatural elements as burns and scalds. In none do we witness so much agony or such poor results from treatment.

Burns are to be dreaded in their remote results, as well as in their immediate consequences. Recovery in many cases is accompanied by hideous deformity. Severe facial burns not unfrequently leave the face twisted and distorted to such a degree as to almost destroy its semblance to humanity. The cheeks may be stretched to one side, the angles of the mouth widely separated, or the lower jaw drawn toward the shoulder, by a cicatrice of the neck. Burns of the neck may bend the head sideways, or draw it down on the chest. Where the arms or hands are burned, the cicatrices bend the joints out of place, and impair their movements. Thus the fingers may be doubled up and clinched, or the forearm flexed or strongly pronated. Sometimes the eyelids are fastened to the cheek, or drawn upward on the forehead. In the latter case the eyeballs cannot be covered or protected from irritating particles of dust; great distress results in this condition, from want of sleep. A case