The Region of the Face

Let us know how access to this document benefits you

Follow this and additional works at: http://jdc.jefferson.edu/regional_anatomy

Part of the History of Science, Technology, and Medicine Commons

Recommended Citation
http://jdc.jefferson.edu/regional_anatomy/6
ganglions, and branches from the nasal, anterior dental, and anterior palatine nerves. The olfactory nerves, about twenty on each side, are derived from the olfactory bulbs, and pass through the foramina in the cribriform plate of the ethmoid bone. They are arranged in three sets on each side, and each nerve is invested with a fibrous prolongation from the dura mater. The inner set supply the upper part of the septum; the middle are the smallest, and are spread over the roof of the nose; the outer are the largest, and are divided into two groups, the anterior group supplying the mucous membrane over the superior turbinate bone, and the posterior group being distributed over the os planum and the middle turbinate bone. It will be noticed that the olfactory nerves are situated high up in the nasal cavities, and hence in the effort to smell intently the nostrils are always dilated. The partial loss of smell in some cases of facial paralysis has been ascribed to inability to dilate the nostrils. The olfactory nerves ramify between the mucous membrane and the bone, communicating freely with one another, and forming plexuses with elongated meshes. The fibres of these nerves are non-medullated, with a sparsely nucleated neurilemma. Interspersed between the columnar epithelial cells in the olfactory region there are peculiar cells having a nucleated body with two processes. These are called the olfactory cells, because one of the cell processes terminates on the surface of the mucous membrane and the other is believed to be in connection with the terminal filaments of the olfactory nerves.

THE REGION OF THE FACE.

The landmarks of the face (Plates 1 and 28) include, besides the bony prominences of the orbits (page 79) and the nose (page 108), the malar eminences and their backward prolongations into the zygomatic arches, which support the cheeks, and the angles, lower border, and mental eminence of the inferior maxillary bone, the latter giving prominence and character to the chin.

The skin of the face is generally very fine and thin, and adherent to the parts beneath, except over the eyelids, where it is peculiarly delicate and the subcutaneous cellular tissue is very loose. In relation to the alæ of
the nose and the chin it is more dense, and somewhat resembles the tissues of the scalp; and over the bony prominences contused wounds are often attended with a linear rupture of the skin similar to an incised wound. The lax arrangement of the cellular tissue elsewhere about the face is demonstrated in the swellings which follow inflammatory infiltration about the cheeks and mouth. There is much fat in the subcutaneous tissue of the face, especially in the anterior parts of the cheeks (Plates 18 and 19) and in relation to the zygomatic muscles. In children there is an aggregation of fatty lobules surrounded by a capsule over the buccinator muscles, called the “sucking cushions,” because they are thought to be instrumental in distributing the atmospheric pressure and preventing the buccinator muscles from being pressed inward between the alveolar arches when a vacuum is created in the mouth. The skin of the face is intimately associated with many of the subjacent muscles, the habitual use of some of which produces the facial furrows and markings characteristic of certain expressions. A careful study of these lines and their varying modifications will prove of great value to the physician in forming a diagnosis of many diseases, especially in young children and the ignorant, in whom the facial expression is often the sole guide in the recognition of subjective symptoms. The only way of obtaining information from an infant who cannot communicate ideas or describe sensations by speech, is by noticing the expression and gestures. Such observation teaches that contraction of the brows indicates pain in the head; sharpening of the nostrils, pain in the chest; and drawing of the upper lip, pain in the abdominal region. There are certain lines (Jadelot's) which become marked in the face of any one suffering from serious diseases. Of these, the line which begins at the inner corner of the eye and passes outward toward the cheek-bone beneath the lower lid—the oculo-zygomatic line—is associated with disorder of the cerebro-nervous system. The line which extends from the wing of the nose round the corner of the mouth,—the nasal line,—if connected with marked dimpling of the cheek, points to disorder of the digestive tract. This is especially the case in infancy. The line which passes from the angle of the mouth to the lower part of the face—the labial line—is a sign of disease of the respiratory organs.
PLATE 17.

The skin removed on the left side of the neck to show the platysma myoides muscle and the usual position of the great external jugular vein.

1. The anterior temporal artery, seen through the scalp.
2. The position of the temporal artery, where it emerges from the parotid gland.
3. The position of the parotid gland.
4. The position of the submaxillary gland.
5. The external jugular vein, showing its course from the angle of the lower jaw to the middle of the clavicle.
6. The prominence of the thyroid cartilage (pomum Adami).
7. The platysma myoides muscle.
8. Superficial veins over the supra-clavicular fossa.
9. The helix.
10. The fossa (ovalis) of the anti-helix.
11. The fossa (scaphoidea) of the helix.
12. The anti-helix.
13. The tragus.
14. The concha.
15. The anti-tragus.
16. The lobule.
The muscles of the face, especially those called from their action the muscles of expression, are of finer texture and paler color than the muscles generally in other parts of the body. The muscles of expression also have no proper tendons of origin or insertion, are destitute of aponeuroses or sheaths, and blend with adjacent muscles by the most complex and delicate interlacement of their fibres (Plate 15), so that they do not present the same arrangement in every individual. They often vary in development even on the two sides of the face, thereby influencing the character and degree of the expressions. The muscles of the forehead, orbits, and nose are described with the anatomy of those regions. The muscles which surround the mouth and are attached to its upper and lower borders are remarkable for their interdependence (Plate 15) and for their great mobility. The orbicularis oris muscle is, like other sphincter muscles, composed principally of circular fibres, and has very slight attachments to the neighboring bones. The variety in the prominence of the lips in different individuals depends upon the size and thickness of this muscle. It consists of two portions, each possessing very marked differences from the other in the appearance and arrangement of its fibres. The labial portion is composed of very thin pale fibres which surround the mouth and have no bony attachment; the facial portion is broader, its fibres at the outer borders of the upper and lower lips intermingling with the fibres of other muscles, which converge toward it from the surrounding parts of the face. It is connected on each side to the bone by two fasciculi in the upper lip, one to the septum nasi and the other to the alveolar border in relation to the incisor teeth, and by a single fasciculus on each side in the lower lip to the lower jaw in relation to the canine tooth. There are tiny slips extending one on each side from the orbicularis to the anterior part of the nasal septum, producing the delicate furrow, called the philtrum, from the nose to the upper lip. This muscle counteracts all the other muscles which move the lips, the infinite play and variety of expression about the mouth depending upon the counterbalancing of their opposing actions. The ordinary action of the orbicularis closes the lips, and, on account of the outer surface of the muscle being intimately connected
with the lips and the overlying skin, its forcible contraction produces radiating wrinkles about the mouth in the skin of elderly persons.

The *levator labii superioris et alarum nasi* muscles arise from the nasal processes of the superior maxillary bones near the inner borders of the orbits, and, passing downward, divide into inner slips, which are inserted into the alar cartilages of the nose, and outer slips, which blend with the orbicularis oris and the adjacent levatores labii superioris muscles in the upper lip. These muscles serve to dilate the nostrils and to draw upward the upper lip and the wings of the nose, and produce the changes in the countenance in the expressions of indignation, disgust, and derision. Their habitual use occasions the furrows which extend from the side of the nose to the corners of the mouth. The *levator labii superioris (proprius)* muscles arise from the lower borders of the orbits beneath the orbicular muscles of the eyelids, above the infra-orbital foramina, and, overlapping the deep origins of the compressor nasi and levator anguli oris muscles, on each side, their fibres blend with the orbicularis oris. The two *levator anguli oris* muscles arise underneath the preceding muscles from the canine fossa of the superior maxillae below the infra-orbital foramina, and blend at the angles of the mouth with the contiguous muscles. The *zygomaticus* muscle arises on each side from the malar bone near its junction with the zygoma, and passes obliquely in a bed of fatty tissue across the side of the face to the angle of the mouth, where its fibres interlace with those of the other muscles of the upper lip. The action of this muscle is seen in laughing and snarling. Sometimes an additional muscular slip passes downward from the orbicularis palpebrarum, and, taking a course parallel to the zygomaticus, is called the *zygomaticus minor*. The *depressor anguli oris muscle* on each side has a broad origin from the oblique line of the inferior maxilla behind the mental foramen, and its fibres converge upward to a narrow insertion at the angle of the mouth, where they intermingle with those of the zygomaticus, the orbicularis oris, and the upper portion of the platysma muscle, known as the *musculus risorius* (or laughing muscle of Santorini), and also with the under strata of the levator anguli oris. The peculiar arrangement of the interlacing of the fibres of this muscle at the corner of the mouth with so many others
renders this part the most mobile in the face. The depressor anguli oris is the most expressive of all the facial muscles: it plays an important rôle in melancholy and sorrowful emotions.

The depressores labii inferioris muscles arise from the lower jaw, between the symphysis and the mental foramina, a quantity of fat being generally interspersed among their fibres, which are inserted into the lower lip, blending with one another and the outer portion of the orbicularis. These muscles draw the lower lip downward and a little outward, as in the expression of irony or sarcasm.

The levatores menti muscles arise in conical bundles from the incisor fossae of the lower jaw, and are inserted into the skin of the lower part of the chin. Their action is to wrinkle the chin, as in doubt, and to raise the chin and protrude the lower lip. The latter action is made use of in shaving the chin.

The two risorius muscles are constituted by a separation of the upper fibres of the platysma myoides muscles, which are inserted into the superficial layer of fibres from the depressor anguli oris and the orbicularis muscles at the angles of the mouth. A few fibres of the risorius muscles occasionally arise from the fascia over the masseter muscles. When these are pronounced, the action of these muscles is noticeable in laughter, but as they usually exist they produce the smile of scorn or derision rather than that of good humor. There is often great diversity in the development of these muscles on the two sides of the same face. Beneath the risorius and other muscles which blend at the angles of the mouth are the oral attachments of the buccinator muscles. These muscles are chiefly concerned with keeping the food between the teeth during mastication, and therefore are more properly classified with the regions of the cavity of the mouth (page 172) and of the pharynx. They arise from the molar portions of the alveolar processes of the upper and lower jaws, and posteriorly from the fibrous intersections which separate them from the superior constrictor muscles of the pharynx on each side. These fibrous bands extend from the hamular processes of the internal pterygoid plates to the posterior extremities of the mylo-hyoid ridge on each side of the lower jaw, near the last molar teeth. They are called the pterygo-
maxillary ligaments. The fibres of the buccinator muscles pass forward, to be inserted in a peculiar manner at the under surface of the other muscular structures at the angles of the mouth. The upper fibres join the upper lips, and the lower fibres the lower lips, while the central fibres cross one another. Unlike the rest of the facial muscles, the buccinators are covered with a sheath of fascia externally, which greatly increases their power. In relation to the masseter muscles a quantity of fat, on each side, fills up the zygomatic fossae, giving to the face a fulness or roundness in these parts. Its absorption produces the sunken condition of the cheeks in emaciated individuals. The buccinator muscles widen the aperture of the mouth by pulling upon its corners, and their power for expelling the air from the mouth is seen in whistling, or in blowing a trumpet (whence their name).

The masseter muscles arise from the lower edges of the zygoma and malar bones. These muscles consist of superficial and deep strata of fibres arranged in a crossed manner which greatly augments their power. The superficial fibres constitute the principal part of each muscle, and take origin by a thick tendinous aponeurosis from the malar process of the superior maxilla and from the lower border of the anterior two-thirds of the zygoma (Plates 16, 18, and 21). These fibres pass obliquely backward, and are inserted into the angle and the lower half of the outer surface of the ramus of the jaw. The deep fibres are mainly muscular, and arise from the posterior third of the lower border and the whole of the inner surface of the zygomatic arch. They pass downward and forward, and are inserted into the upper half of the ramus and the outer surface of the coronoid process, blending with the insertion of the superficial fibres. The anterior border of the muscle is therefore formed of the two layers of fibres, and presents a thick prominence which can be readily felt by the finger inserted in the mouth between the cheek and the malar bone. The deep portion of this muscle is partly covered by the superficial portion anteriorly, and it is in relation to the parotid gland posteriorly. The masseter muscles assist largely in producing the contour of the lower part of the face. Their function is to raise the lower jaw and to assist the temporal muscles in mastication. There is a dense layer of fascia, derived
from the deep cervical fascia, which covers each masseter muscle, called the masseteric fascia. It adheres intimately to the tendon of origin of the superficial portion, and binds it firmly to the ramus of the jaw. A few strong fibres also connect the origin of the deeper portion with the tendon of the temporal muscle at the coronoid process. The motor nerves of the masseter muscle are, like those of the temporal (page 14), derived from the inferior maxillary nerve. The spot where reflex contraction of the masseter muscle may be produced by electrical stimulation is four centimetres, or about an inch and a half, in front of the ear, on a line drawn from the apex of the nose to the lobule (Plate 53, Fig. 1, No. 21).

The arteries of the face are very numerous, and are derived from the facial, internal maxillary, and temporal branches of the external carotid artery. The facial (or external maxillary) artery, after it has tunneled through the submaxillary gland, appears at the side of the face, coursing over the body of the lower jaw, accompanied by the facial vein in front of the masseter muscle (Plate 18, No. 14, and Plate 19, No. 13). In this relation the artery is comparatively superficial, and its pulsation can be readily detected or checked by compression. In order to secure it with a ligature the incision should be made parallel to the anterior border of the masseter muscle, about three centimetres, or an inch and a quarter, in front of the angle of the jaw; but it should be remembered that the vessel usually lies in a loose bed of fat, and that the skin and platysma muscle over it are freely movable, so that it will readily slip aside. It may be rendered more tense by depressing the lower jaw. From the masseter muscle the artery passes very tortuously to the corner of the mouth, where it gives off ordinarily the inferior labial and coronary arteries to the lips, and is continued up along the side of the nose to the inner canthus of the eye, terminating as the angular artery (Plate 19, No. 4). In its course over the face it gives off branches to the masseter and buccinator muscles. The inferior labial artery passes under the depressor anguli oris and anastomoses with the mental, submental, and inferior coronary arteries. The inferior coronary artery is usually given off from the facial near the corner of the mouth, either by an independent trunk or in common with the superior coronary. It passes beneath the
depressor anguli oris, pierces the orbicularis, and, running between this muscle and the mucous membrane of the lip, inosculates with its fellow and the inferior labial and mental arteries. The *superior coronary* is larger and more tortuous than the inferior, and arises from the facial artery beneath the zygomaticus muscle. It also runs between the muscular structure of the upper lip and the mucous membrane, and, inosculating with its opposite fellow, forms with the two inferior coronary arteries a *vascular circle*, which can be felt pulsating on the inside of the mouth by compressing the lips anywhere near their free borders. The superior coronary supplies branches to the septum and ala of the nose. Sometimes this vessel arises independently from the transverse facial branch of the temporal artery (Plate 19, No. 9), which is then much enlarged and superficial.

The *lateral artery of the nose* is supplied by the facial to the ala and dorsum of the nose. It anastomoses with the nasal branch from the ophthalmic artery, the septal artery, the infra-orbital artery, and the communicating vessels from the other side of the nose.

The *angular artery* is the termination of the facial, and ascends among the fibres of the levator labii superioris et alae nasi muscle to the inner angle of the orbit, where it inosculates with the nasal branch of the ophthalmic artery in relation to the tendo palpebrarum, on the nasal side of the lacrimal sac. The anastomoses of the facial artery are so numerous that ligature of both ends of a divided vessel in this region is often necessary. The great vascularity of the face occasions very rapid healing in wounds, which should have their edges accurately adjusted as soon as possible, to avoid distortion. The same cause also occasions the occurrence of naevi and erectile tumors about the face. The remarkable success of plastic surgery in this region is due to the great vitality of the flaps, and extensive injuries involving loss of substance are often repaired rapidly.

The *facial artery* and its branches are surrounded by a minute plexus of vaso-motor and dilator nerves, derived from the superior cervical ganglion of the sympathetic nerve (Plate 36, No. 49), to the influence of which is probably due the sudden blushing or pallor of the countenance which attends mental emotions, as in shame or fear.
THE REGION OF THE FACE.

The facial vein begins at the inner corner of the eye, where it receives the blood from the frontal and supra-orbital veins, and is called the angular vein where it is in relation to the angular artery. Thence it passes down the side of the nose, with the lateral nasal artery, and from the alar cartilage it takes an oblique course to the anterior border of the masseter muscle, being interposed between it and the facial artery, with which it is apt to be ensheathed (Plate 18, No. 15, Plate 19, No. 13, and Plate 21, No. 32). It usually passes directly over the termination of the parotid duct (Plate 18, No. 10). The veins emptying into the facial vein are the tributary veins from the territories supplied by the branches of the facial artery; but at the corner of the mouth it is increased in size by the communicating veins from the infra-orbital and temporo-maxillary veins. By far the most important of the communications of the facial vein are the veins which bring it in relation with the cavernous sinus at the base of the brain. This connection is twofold. There is a direct communication with the angular vein through the ophthalmic vein (page 95), and an indirect communication through the deep facial vein, from the pterygoid plexus, which is in relation with the cavernous sinus by small veins through the foramen of Vesalius, in the sphenoid bone, and the fibrous tissue of the foramen lacerum medium. There are no valves in the facial vein, or at the junction of any of its branches, so that when it is involved in wounds the bleeding from it is very copious. It is also peculiar in remaining more patent after being cut than superficial veins elsewhere, which renders it liable to septic absorption. The facial vein terminates in the internal jugular vein near the bifurcation of the common carotid artery. The lymphatic vessels of the face converge chiefly toward the submaxillary ganglia, while some go to a few lymphatic ganglia which lie superficially over the parotid gland (Plate 16).

The sensory nerves of the face are mainly derived from the terminal branches of the fifth cranial, or trifacial, nerve (Plate 3, Fig. 2). An accurate knowledge of the position of the foramina through which they make their exits upon the face (Plate 28), and of their cutaneous areas of distribution (Plate 53, Fig. 1), is of the greatest value in determining the seat and treatment of neuralgic affections in this region. The oph-
PLATE 18.

The superficial fascia removed from the left side of the face, together with the platysma myoides muscle from the neck, to show the superficial vessels and nerves in these regions, and especially the superficial relations of the parotid gland.

1. The supra-orbital artery.
2. The anterior branch of the temporal artery.
3. The angular artery.
4. The compressor naris muscle.
5. The levator labii superioris muscle.
6. The lateral nasal artery and vein.
7. The levator anguli oris muscle.
8. The zygomaticus major muscle.
9. The transverse facial artery.
10. The duct of Stenson, from the parotid gland.
11. The infra-orbital branches of the facial nerve.
12. The orbicularis oris muscle.
13. The inferior labial artery (arising in this case from the transverse facial artery).
14. The facial artery.
15. The facial vein.
16. The depressor labii inferioris muscle.
17. The submaxillary vein, joining the facial vein with the external jugular vein.
18. The anterior belly of the digastric muscle.
19. The mylo-hyoid muscle.
20. The submaxillary gland.
21. The facial branch of the auricularis magnus nerve.
22. The oblique vein, joining the facial vein with the internal jugular vein.
23. The point of bifurcation of the common carotid artery.
24. The thyroid notch (pomum Adami).
25. Superficial branches of the superior thyroid artery.
26. The superficial transverse cervical nerves.
27. The left sterno-thyroid muscle.
28. The left sterno-hyoid muscle.
29. The fascia over the supra-clavicular fossa.
30. The sternal portion of the sterno-cleido-mastoid muscle.
31. The clavicular portion of the sterno-cleido-mastoid muscle.
32. The sternal and clavicular nerves, from the cervical plexus of nerves.
33. The fascia over the clavicle.
34. The fascia over the great pectoral muscle.
35. The superficial temporal nerves.
36. The auriculo-temporal nerve.
37. The temporal artery.
38. The orbital branch of the temporal artery.
39. The temporal branches of the facial nerve.
40. The parotid gland.
41. The auricular branch of the auricularis magnus nerve.
42. The mastoid branch of the auricularis magnus nerve.
43. The external jugular vein in its proper position.
44. The external and internal carotid arteries covered by their sheaths of the deep fascia.
45. The auricularis magnus nerve.
46. The junction of the superficial cervical veins with the external jugular vein.
47. The acromial nerve.
thalmic division of the trigeminal nerve supplies the supra-orbital, the supra-trochlear, the lacrimal, the infra-trochlear, and the naso-lobular, all of which have been described with their special regions.

The superior maxillary division of the trigeminal nerve terminates upon the face in the infra-orbital nerve and the temporo-malar nerve; the former of which emerges, with the infra-orbital artery, from the infra-orbital foramen under the levator labii superioris muscle. The infra-orbital foramen is six millimetres, or about a quarter of an inch, below the margin of the orbit, and directly in a straight line drawn from the supra-orbital foramen, which is three centimetres, or an inch and a quarter, from the external angular process, toward the root of the nose, to the mental foramen, which is the same distance outward from the symphysis of the lower jaw. The location of this foramen is of surgical importance, as the nerve is apt to be compressed within its bony canal. The foramen may be reached by a trap-door incision made parallel to the lower margin of the orbit, over the point just indicated. The infra-orbital canal, in which the nerve is lodged before it makes its exit at the foramen, presents considerable variations, so that the operation for resection of the nerve is better done by seeking the foramen first, and then chiselling away the bone so as to expose the nerve in the anterior part of its course. In close relation to the infra-orbital foramen is the plexus formed by the communications between the deep branches of the facial nerve, which supplies the adjacent muscles, and the descending branches of the infra-orbital nerve. Immediately after issuing from the foramen, the nerve separates into a leash of fibres, some of which, the palpebral, pass upward beneath the orbicularis palpebrorum muscle to supply the lower eyelid; others, the nasal, pass to the side of the nose; and others, the labial, and the most numerous, descend beneath the levator labii superioris muscle and terminate in the papillae of the upper lip and the bordering mucous membrane of the mouth. The temporo-malar nerve arises from the superior maxillary nerve within the spheno-maxillary fossa, whence it enters the orbit and divides into temporal and malar branches. The temporal branch runs in a groove in the malar portion of the orbit and passes through a foramen in the malar bone. It ascends under the temporal muscle, which
THE REGION OF THE FACE.

it pierces, together with its fascia, about two and a half centimetres, or an inch, above the zygoma, and is distributed to the skin of the temple and side of the forehead (Plate 53, Fig. 1, No. 20). The malar branch issues on the face through a foramen in the malar bone, of variable size and position, and, piercing the outer fibres of the orbicularis palpebrarum muscle, supplies the skin of the cheek over the malar bone, being sometimes called the subcutaneous malar.

The sensory portion of the inferior maxillary division of the trigeminal nerve terminates upon the face in the auriculo-temporal nerve, the buccal nerve, and the mental nerve. The auriculo-temporal nerve arises by two roots, which surround the middle meningeal artery (Plate 3, Fig. 2, No. 20), and then combine to form a single trunk, which passes behind the external pterygoid muscle and the neck of the lower jaw. It first ascends beneath the parotid gland, and then passes, with the temporal artery and vein, over the root of the zygoma and divides into anterior and posterior branches (Plate 18, No. 36, and Plate 19, No. 20). The anterior branch supplies the skin over the vertex and the temporal region; the posterior branch supplies the upper part of the pinna and the adjacent integument. The auriculo-temporal nerve communicates, near its origin, with the otic ganglion. It sends auricular branches to the meatus externus and the membrana tympani (page 65), and to the tragus and auricle. It also sends branches to the temporo-maxillary joint and to the parotid gland. The buccal nerve arises usually in common with the anterior deep temporal nerve, and passes either above or between the fibres of the external pterygoid and temporal muscles to reach the buccinator muscle, where its filaments spread out and form with the buccal branches of the facial nerve a plexus in relation to the facial vein. The buccal nerve supplies sensation to the skin, the mucous membrane, and the buccal glands of the cheek. This is borne out by several instances where this nerve has been found to originate from the superior maxillary nerve. The facial nerve incites the motor power of the buccinator muscle by a special branch (page 130). The mental nerve is the termination of the inferior dental branch of the inferior maxillary nerve, which emerges, with the mental artery, at the mental foramen in the lower jaw, beneath the
depressor anguli oris muscle. It divides into a leash of fibres, some of which supply the integument over the chin, and the rest are distributed to the papillae and mucous membrane of the lower lip. The skin covering the parotid gland and contiguous part of the cheek is supplied with sensation by the great auricular branch of the cervical plexus of nerves (Plate 53, Fig. 1, No. 27).

The motor nerves of the face are derived from the branches of the seventh cranial or facial nerve, which emerge at the anterior border of the parotid gland over the masseter muscle. The origin of the facial nerve, from the lateral tract of the medulla oblongata (page 41), and its course through the aqueduct of Fallopian in the temporal bone (page 69) to its exit from the skull at the stylo-mastoid foramen, have been described. After issuing from the foramen the facial nerve sends off motor branches to the posterior auricular, occipital, digastric, and stylo-hyoid muscles, and then, in relation to the ramus of the lower jaw, divides into two primary facial branches, named, from their distribution, the temporo-facial and cervico-facial nerves, which form, by their communications within the substance of the parotid gland, the plexus called by the old anatomists the pes anserinus (Plate 19, No. 23), from its fancied resemblance to the outspread skeleton of a goose's foot.

The temporo-facial nerve is the largest, and in passing through the parotid gland it crosses the external carotid artery and the neck of the jaw. It is joined by several sensory twigs from the auriculo-temporal branch of the trifacial nerve, and divides into temporal, malar, and infra-orbital branches. The motor temporal nerves ascend over the zygoma and supply the muscles about the orbit and eyelids, and form sensory connections with the supra-orbital nerve, with the temporal branch of the superior maxillary nerve, and with the auriculo-temporal and lachrymal nerves. The spot where reflex contraction of the temporal muscle may be produced is two and a half centimetres, or about an inch, in front of the ear, on a line drawn from the eyebrow to the top of the auricle (Plate 53, Fig. 1, No. 6). The motor malar nerves cross the malar bone to the outer angle of the orbit, supplying the contiguous portion of the orbicularis muscle, and join with sensory filaments from the lachrymal, supra-orbital, and subcutaneous male
nerves. The motor infra-orbital nerves are comparatively of larger size, and consist of superficial and deep branches which pass forward over the masseter muscle to be distributed to the muscles beneath the lower margin of the orbit and about the mouth. The superficial branches supply the superficial muscles of the face and form sensory connections with the nasal and infra-trochlear nerves along the nose. The deep branches pass beneath the zygomaticus and levator labii superioris muscles, which they supply, and establish sensory connections with the infra-orbital branches of the superior maxillary nerve, forming the infra-orbital plexus, already mentioned. The cervico-facial nerve is joined within the parotid gland by sensory filaments from the auricularis magnus branch of the cervical plexus of nerves. It descends toward the angle of the jaw, and divides into the buccal, supra-maxillary, and infra-maxillary nerves. The motor buccal nerves pass over the masseter muscle to supply the buccinator and orbicularis oris muscles. They join with filaments of the infra-orbital motor nerves, and form sensory connections with the buccal branch of the inferior maxillary nerve. The supra-maxillary nerves pass beneath the platysma and depressor anguli oris muscles, which they supply. They establish sensory communications with the mental branch of the inferior maxillary nerve. The infra-maxillary nerves consist of several arching branches beneath the platysma muscle, which they supply, between the jaw and the hyoid bone. One of these branches is joined by the superficial cervical nerve from the cervical plexus (Plate 19, No. 27).

**THE REGION OF THE PAROTID GLAND.**

The parotid gland, so called because it is near the ear (Plates 13 and 18), is the largest of the salivary glands. It weighs from half an ounce to an ounce in different individuals, and is lodged in a pyramidal bed upon the side of the face, below and in front of the ear. Its external surface is firmly bound down by an extension of the fascia from the masseter muscle, which is here called the parotid fascia, and which serves to conceal the form of the gland from external view. The tough and unyielding nature of this fascia accounts for the intense pain often experienced in cases