possible at the time he examined the case, he thought, to have avoided being misled. Those shooting pains were not, he thought, mentioned in any of the books. They were familiar, however, to him, and he was struck by their absence in this case. They did not necessarily mean ascending paralysis, as the alcohol being withdrawn at certain stages, a cure might result. They, no doubt, pointed to some early and perhaps remedial spinal attack.

Dr. BROADBENT (London) had had the advantage of seeing the case described by Dr. Myrtle at a later period than Dr. Allbutt, when there was no longer any possibility of misapprehending the serious nature of the disease; the paralysis was marked and associated with a peculiar flabbiness of the muscles; there was wasting of the muscles of the thumb, and especially swelling and congestion of the limbs when they were in the dependent position for a few minutes. He would not himself have placed the case in the category of acute ascending paralysis. He was familiar with this disease, having seen several cases; and, in addition to the length of time over which the symptoms extended, the physiology of the case in question was different from that of acute. He considered the case to belong to a group of which he had seen four or five examples besides that of Dr. Myrtle's patient. The disease was a peculiar form of paralysis which he had only met with in women, and as a result of alcoholic excess. The loss of power did not affect the lower extremities first and completely, gradually ascending to the chest and arms, but was more or less present in all the limbs; in the upper extremities the extensors of the wrist were often predominantly affected at first, but later the flexors suffered, and then the hand dropped according as the forearm was pronated or supinated; there was a peculiar softness and flabbiness of the muscles when they were handled, and the very remarkable congestion and swelling of the feet and hands mentioned by Dr. Myrtle when they were allowed to hang down even for a few minutes. This was of course due to vaso-motor paralysis, and probably had much to do with the peculiarities of the affection. All the cases he had seen proved fatal except one, but he had obtained a *post mortem* examination of only one of the patients, and that at too late a period after death for microscopic investigation. To the naked eye, the spinal cord presented no abnormal appearances. His experience coincided with that of Dr. Myrtle with regard to delirium tremens in women. He had never seen a well marked example of delirium tremens in the female, and he had never seen the form of paralysis under consideration in the male.

Dr. FITZPATRICK (Liverpool) asked Dr. Myrtle whether, before or after the succession of epileptic convulsions, there was any trace of albumen in the urine. He agreed with the remarks of the President (Dr. Allbutt) that the case was not one of acute ascending paralysis. He had a similar case of a lady, aged 32, in whom the acute symptoms as described in the paper came on only in August once. The case terminated fatally in the following January. Albumen was present in the urine in his case.

Dr. CUMING (Belfast) had seen two cases of acute ascending paralysis in which no alcoholic history whatever was present. He had been struck by the retention of power of the sphincters and of urination. He had often observed the pains in the lower limbs in females with suspicion of alcoholism. Delirium tremens, although less common in females, was by no means unfrequent, probably owing to differences in the way in which the alcohol was taken.

Dr. HARE (London) confirmed, both from the experience of hospital and of private practice, the statements as to the different results of alcohol-taking on the two sexes. Delirium tremens he had met with, relatively, very rarely amongst women, and he was inclined to think that alcohol produced fatal effects less rapidly amongst women than amongst men. These points were the more remarkable, because, from inquiries amongst publicans, he had learnt that while men were the great consumers of beer (or diluted alcohol), women were the great consumers of spirits or the more concentrated drinks. He had been assured by intelligent publicans in London, that where they sold one pint of spirits to men, they sold fully five to women.

Dr. MYRTLE, in reply, said he had examined the urine very frequently, and had never found a trace of albumen nor any abnormal product. He had called it acute ascending paralysis, because, although not so very acute in its earlier course, yet the fresh burst of symptoms preceding death was very acute and very marked, three different sets of symptoms coming on within a few hours. There was no need for passing the catheter; and the bowels acted even more regularly after paralysis than they had done before.

THE salary of the apothecary to the Bandon Dispensary has been increased by £10 per annum.

THE STUDY OF THE FACE AS AN INDEX OF THE BRAIN.

Read in the Section of Medicine at the Annual Meeting of the British Medical Association in Worcester, August 1882.

By FRANCIS WARNER, M.D.Lond., M.R.C.P.,

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THE face is a region of the body well worthy of clinical study. We may observe its form, colour, and mobility; and the effects of movement in causing expression. The movement is the outcome of the action of the brain.

The tissues forming the structure which we call the face are mainly the skin, with its vessels and vaso-motor system; the subcutaneous fat; the facial muscles, supplied by the facial nerve; and some of the masticatory muscles, supplied by the fifth nerve.

Most of the variations of facial expression are produced by the facial muscles, which are acted upon by the changes in the brain; and these are the special indications of the cerebral condition to which attention will here be called. The muscles of mastication are less expressive of the condition of the brain than are the facial muscles; but they may become the subject of spasm, atrophy (see Case, *Lancet*, January 7th, 1882), or may produce teeth-grinding, as the result of conditions of the brain.

In almost all cases, the best indications of the conditions of the central nerve mechanism are its effects as seen in the spontaneous action of the muscles; and it is by the result that we usually judge of the central condition. Such effects are conveniently spoken of as nerve-muscular signs. Nerve-muscular signs are the best indices of the brain; the change in the brain affects the muscles; these control the position of the visible parts; and, from the facial changes resulting, we gather our information.

We are here studying the results of cerebral action upon muscles, according to well understood principles of physiology; while physiognomy deals mainly with the shape of the brain-case, and the passive condition of the face.

The principal movements of the facial muscles are these.

1. Dilatation and contraction of the facial foramina; probably this corresponds in significance to flexion and extension.

2. Elevation and depression of parts. Such conditions are well seen by comparing the two sides of the face in a case of Bell's paralysis.

3. Retraction and drawing forward of parts, as in grinning and screwing up the mouth.

To examine a face, hold a piece of paper in front of it, with one edge vertical; either half of the face can then be covered in turn. Again, the face may be divided into three zones, by holding the paper with one margin horizontal, leaving the forehead above the eyebrows uncovered; or, the face below the lower margin of the orbits may alone be exposed, showing the mouth, most of the cheeks, and the *alæ nasi*; or, again, the middle zone, including the eyes with the upper and lower eyelids, may be viewed alone.

After looking for symmetry in a face, the nerve-muscular condition of the individual parts may be compared. A different condition of the different zones has, possibly, about the same kind of significance as an unequal condition of flexion and extension of the different fingers. A condition of different activity in the three zones of the face is a departure from physiological calmness (*e.g.*, a smile, or snarl); it may be normal or abnormal. An unequal condition of the different zones is very common in "nervous people."

In the upper zone, we have the occipito-frontalis and the corrugator supercilii. Here we see the outcome of brain-action in those conditions termed grief, surprise, etc., producing muscular action and corrugating the forehead. The occipito-frontales are often seen overacting in imbeciles, and in cases of chorea; sometimes, also, they overact as a mere "chronic nervous habit." Symmetry in this zone is usually maintained. In the middle zone asymmetry is less uncommon, but is seen in winking and in ptosis. The important muscles here are the orbiculares oculorum. With megrim, and in conditions of depression, a marked change is often seen in the midfacial zone, due to a fulness about the eyes, especially about the under eyelids; the orbiculares have lost their tone, the skin hangs too loosely, the skin of the lower eyelid, instead of forming a convex surface, passes as a plane from the ciliary margin to the lower margin of the orbit. If the patient be made to laugh, the orbiculares are energised for the moment, and the look of depression is lost.

Passing on to the consideration of the lower facial zone, we see here the most marked effects of facial spasm or palsy from brain-disease—*e.g.*, in hemiplegia and lesion of the *crus cerebri*. Thus the weakness of the face is well demonstrated by making the patient show his teeth or smile. Now, the muscles of this region are those most commonly

seen in spontaneous action in imbeciles; it is these muscles that work awkwardly in nervous one-sided grinning, and in this region we most commonly see asymmetry of the features, due to nerve-muscular conditions. It is interesting to note that this region of the face is the most affected by brain-disease (paralysis), and in "nervousness" (irregularity of the mobile features). Again, it is the levator labii superioris in the lower zone which produces one-sided snarling, one of the lowest expressions produced by the human face. In complete development and perfect health the features are usually regular in passive form and in symmetry of movement. In most expressions, the symmetry of bilateral movement is complete; from this we infer that the nerve-mechanisms for each side of the face are intimately connected.

In observing how easily facial asymmetry is brought about, we see evidence that the union of the facial centres is easily dissolved and not very strong, the asymmetry being especially seen in the lower zone; thus asymmetry is produced by nervousness (see one-sided grinning), by the desire to attack (see *Darwin on the Expression of the Emotions*, page 250) (snarling), or by such defective nutrition or development as produces unequal features when in motion. The higher, more intelligent expressions are symmetrical. Union of the facial centres is less perfect than the union between the motor centres of the eyes, for the cerebral condition producing "emotion" cannot cause dissociated movement of the eyes. We find here an illustration that symmetry of action, as well as symmetry of structure, is part of the law of beauty.

It may be remarked as a peculiarity of the facial muscles in man, that they are usually free or disengaged, not mainly occupied in doing a definite work, but their movements are mainly the spontaneous outcome of brain-action. The facial muscles are usually very mobile, and often illustrate the struggle of nerve-muscular actions; this may be seen in the conflict of the muscles about the mouth in the endeavour not to cry. The study of nerve-muscular signs in the limbs shows the importance of observing whether "the movement of small parts"—*e.g.*, the fingers—be thoroughly good; this kind of observation in the facial region is, I think, represented by "the finer movements of expression". These are totally absent in some cases of paralysis agitans, although the larger movements of the face can be voluntarily performed. When fatigued, the brain does not act well in producing the small fine movements of either hand or face. We sometimes see a nervous play of the features; this, I imagine, depends upon slight irregularity of the muscles producing slight movements. In convulsion, both clonic and tonic, and in tetanus, the larger muscles usually produce the most marked effect.

In observing different types of face, we become at once struck with the fact that some faces express intellectuality, others vulgarity; some faces are very mobile and very expressive, others are passive and immobile.

The peculiarity of vulgar faces may be roughly divided into two elements. 1. Physiognomy or the shape of the brain-case and face, together with the character of the facial tissues, and the structure of the features and parts of the face. Here, probably, we have an example of the coincident defective or coarse development of the face and the brain.* This illustrates the relation of morphology and function, the structure of the face, and the coincident structure and function of the brain which moves the face. Elements contributing to this character of face are a large under jaw, a thick immobile condition of the facial skin, thick lips, etc. It will be seen that these are mainly conditions in the development increasing the protective character of the skin of the face; the thick immobile tissue is better able to resist the action of external agencies, but it is also less mobile under the action of nerve-muscular changes. The large lower jaw may be very useful for mastication or defence, but it does not serve to increase the play of nerve-muscular actions.

2. The second typical characteristic is the nerve-muscular condition of the face. Such signs are more directly indicative of intellectuality of the brain; hence we should study a face as the index of the brain, when it is seen in action as well as when at rest. The mobility in the different zones and the relative condition of these areas give indications of the condition of the mental nerve-mechanism. These considerations afford some evidence that facial expression results from nerve-muscular action, the outcome of the motor action of that part of the nerve-mechanism which produces mental states.

* See "Defective Developmental Conditions", *Medical Times and Gazette*, Jan. 21st, 1882. Coincident defects I there show to be common.

NEW HONOUR FOR MEDICAL PRACTITIONERS.—The *Chicago Medical Review* reports that a sapient member of a Southern State legislature has introduced a Bill, providing that in case of death from disease or injury, the name of the physician, who had attended the deceased during the last illness, shall be placed upon the tombstone.

A CASE OF SPINAL HEMIPLEGIA FOLLOWING GANGRENE OF THE RIGHT GREAT TOE.

Read in the Section of Medicine at the Annual Meeting of the British Medical Association in Worcester, August 1882.

BY AGMONDISHAM VESEY, M.B., MAGERAFELT.

A GENTLEMAN, aged seventy years, for about three months complained of severe pains in both calves, and of burning sensations in both feet. To alleviate these, he frequently bathed his feet in cold water. Previously he had always enjoyed excellent health, and, as he said, had never given a fee to a medical man on his own account. He indulged occasionally somewhat freely in the use of ardent spirits, but, as a rule, was most temperate.

On May 18th, 1882, he put on a pair of shoes which were rather tight for him, and walked five or six miles. This was followed by severe pains in both feet, the tops of the great toes being especially affected. He pared the nails very closely, and instead of the pain being alleviated it increased, and a purple spot formed at the base of the right great toe, with swelling and redness of the dorsum of the right foot.

On May 26th, he first consulted me. The right great toe was purple and cold, and the rest of the foot swollen, red, and shiny. The pain was stated to be almost unbearable in both feet, and though more agonising in the left foot, there was no swelling or discoloration. The tibial arteries in both sides were permeable, and there was no evidence of thrombus here or elsewhere. There was also pain and stiffness in the ring and little finger of the left hand; sensation normal.

On May 29th, the right great toe was unmistakably gangrenous; the superficial veins of the right forearm were hard, cord-like, and filled with clots. There had been no pain complained of in this region. Elsewhere, the veins were quite pervious and normal to the touch. A gradual improvement took place until June 16th, when I detected a systolic bruit in the heart. The condition of the veins of the right arm were the same, and there was no apparent change in the left hand. He had a fair appetite, full control over the bladder and rectum, and no distress in breathing.

On June 17th, in the evening, the left arm was found to be completely paralysed. There was no paralysis elsewhere. There was full power of flexion and extension in the left leg; but though he said it was feeling colder than the other leg, the temperature was not below par except in the foot. The nose was purple at the tip and cold up to the base. Large distended veins were visible here, which were not to be seen previously.

On June 18th there was complete paralysis of the left arm and leg. There was no facial paralysis, and no paralysis of the tongue. Speech was distinct and articulate—no ptosis, no deafness, no difficulty in swallowing. The muscles of the left arm felt flabby and doughy. The breathing was more rapid but not laboured, and the condition of the cardiac murmur was unaltered. He had full power over both bladder and rectum. The right side of the body was found to be anæsthetic: pinching the skin or pricking it with a needle gave no pain. The pain from the gangrenous toe ceased to give any trouble, though previously large doses of morphia were required to keep it in check on his toe with a spoon dipped in hot water.

Hyperæsthesia, too, was noticed on the left side, but not to the same extent as the anæsthesia on the right side. It was confined to the upper part of the thorax, the upper arm, and the shoulder. Owing to continual presence of anxious relatives, who were most strongly opposed to my trying what they called any "experiments," I was unable to satisfy myself as to whether any band of anæsthesia was to be found at the upper border of the hyperæsthetic region, or whether the hyperæsthesia extended to parts below those I have mentioned. All I can say is, that pain of a more excruciating character than before was felt in the left leg and foot.

The patient gradually sank, and became comatose four hours before death on June 19th. No other paralysis supervened. No *post mortem* examination was permitted.

The comparative rarity of spinal hemiplegia must be my apology for bringing this imperfect report before the Section. Owing to the causes stated, I am unable to give any information as to the condition of the reflexes, or as to the diminution or abolition of the common or special sensibility (muscular sense) of the paralysed muscles. The absence of a *post mortem* examination makes it impossible to state with accuracy the exact seat and cause of the lesion. That it was probably situated in the cervical enlargement of the spinal cord, and was caused by softening,