severe exacerbations. In many nervous diseases there are dis­ordered sensations referred to the skin, such as alternations of heat and cold, burning, creeping, itching, and a feeling as if insects were crawling on the surface (formication). This condition is termed *paralgia.* The term *hypalgia* is applied to a diminution and *analgia* to paralysis of pain, as is produced by anæsthetics.

Muscular Sense.—The sensory impressions considered in this article are closely related to the so-called muscular sense, or that sense or feeling by which we are aware of the state of the muscles of a limb as regards contraction or relaxation. Some have held that the muscular sense is really due to greater or less stretching of the skin and therefore to irritation of the nerves of that organ. That this is not the case is evident from the fact that disordered move­ments indicating perversion or loss of this sense are not affected by removal of the skin (Claude Bernard). Further, cases in the human being have been noticed where there was an entire loss of cutaneous sensibility whilst the muscular sense was unimpaired. It is also known that muscles possess sensory nerves, giving rise, in certain circumstances, to fatigue, and, when strongly irritated, to the pain of cramp. Muscular sensations are really excited by irritation of sensory nerves passing from the muscles themselves. We are thus made conscious of whether or not the muscles are contracted, and of the amount of contraction necessary to overcome resistance, and this knowledge enables us to judge of the amount of voluntary im­pulse. Loss or diminution of the muscular sense is seen in chorea and especially in locomotor ataxy. Increase of it is rare, but it is seen in the curious affection called anxietas tibiarum, “ a painful con­dition of unrest, which leads to a continual change in the position of the limbs ” (Landois). See also Physiology. (J. G. M.)

TOUL, a town of France, chef-lieu of an arrondissement in the department of Meurthe-et-Moselle, on the left bank of the Moselle, 199 miles east of Paris by the railway to Nancy, at the point where the Marne Canal joins those of the Rhine and the East. The isolated hills of St Michel and Barine respectively rise 548 feet and 574 feet above the town, which is a stronghold of the first order, the centre of an entrenched camp protected by numerous forts and redoubts, and a link in the chain of fortifications which extends from Verdun to Belfort. The light and elegant church of St Étienne (formerly the cathedral) has a fine choir and transept, dating from the 13th century; the nave and aisles are of the 14th, and the beautiful recently restored façade and the towers (246 feet) of the 15th. The interior (118 feet in height, 289 in length, and 89 in width) has fine glass, a remarkable organ-loft, and some interesting monuments. The bas-reliefs of the charming Gothic cloister (13th and 14th centuries) were much damaged during the Revolution. The choir and transept of St Gengoult, a fine church of the 13th century with a facade of the 15th, contain some interesting 13th- century glass; and the light groups of supporting columns, and the sculptures in the cloisters (first half of the 16th century), should also be mentioned. The old episcopal palace (18th century) is now used as the town-hall; it contains the museum and library, in which is preserved the golden bull by which the emperor Charles IV. in 1367 confirmed the liberties of the city. The population, 9632 in 1881, was 9981 in 1886 (commune 10,459).

Toul *(Tullum)* is one of the oldest towns of France; originally capital of the Leuci, in the Belgic confederation, it acquired great importance under the Romans. It was evangelized by St Mansuy in the latter half of the 4th century, and became one of the leading sees of north-east Gaul. After being sacked successively by Goths, Burgundians, Vandals, and Huns, Toul was conquered by the Franks in 450. Under the Merovingians it was governed by counts, assisted by elective officers. The bishops, who had become increasingly powerful, were invested with sovereign rights in the 10th century, holding only of the emperor, and for a period of 300 years (13th to 16th centuries) the citizens maintained a long struggle against them. The town was forced to yield for a time to the count of Vaudemont in the 12th century, and twice to the duke of Lorraine in the 15th, and was thrice devastated by the plague in the 16th. Charles V. made a solemn entry into the town in 1544, but in the following year, at the instance of the Cardinal de Lorraine, it placed itself under the perpetual protection of the kings of France. Henry II. took possession in 1552, but the town with its territory was not officially incorporated with France till 1648. Henry IV. was received in state in 1603, and in 1637 the parlement of Metz was transferred to Toul. In 1700 Vauban recon­structed the fortifications of the town, and in 1790 the bishopric was suppressed and the diocese united to that of Nancy. Toul capitulated in 1870, after a bombardment of twelve days from heights now included in the new fortifications.

TOULON, a French fortress of the first class, chef-lieu of an arrondissement in the department of Var, of the 5th naval arrondissement, and of a military subdivision, is situated on the Mediterranean, 42 miles east-south-east of Marseilles by the railway to Nice. The bay, which opens to the east, has two divisions, the “ grand rade ” and the “petite rade”; it is sheltered on the north and west by high hills, closed on the south by the peninsula of Capes Sicié and Cépet, and protected on the east by a huge breakwater,—the entrance, 1300 feet wide, being defensible by torpedoes. A ship coming from the open sea must first pass the forts of St Marguerite, of Cape Brun, of La Malgue, and of St Louis to the north, and the battery of the signal station to the south; before reaching the petite rade it must further pass under the guns of the battery of Le Salut to the east, and of the forts of Balaguier and L’Éguillette to the west. The Bay of La Seyne lies west of the petite rade, and is defended by the forts of Les Six-Fours, Napoleon (formerly Fort Cairo), and Malbous- quet, and the batteries of Les Arenes and Les Gaus. To the north of Toulon rise the defensive works of Mont Faron and Fort Rouge, to the east the forts of Artigues and St Catherine, to the north-east the formidable new fort of Le Coudon, and to the south-east that of La Colle Noire, respectively dominating the highway into Italy and the valley of Hyéres with the Bay of Carqueyranne. The port of Toulon consists of the old dock, of which one-third is reserved for the national navy, a new dock, wholly so devoted, a harbour capable of receiving trading vessels drawing from 16 to 18 feet, but only used for car­goes of wood and wine, and the Castigneau dock. The naval arsenal (including the arsenal of Castigneau, which is contiguous with it, in the direction of La Seyne) extends over 4 miles, has an area of 667 acres, and employs from 12,000 to 13,000 men. It contains the offices connected with the administration of the port, the office of naval construction, a well-stored naval museum, and a great variety of workshops. These last include a rope-work 1050 x 66 feet, covered building yards, careening basins, forges, armourers’ and joiners’ shops, general magazines, reconstructed on a fireproof principle since the conflagra-