they feel as “ hard as a board.” The muscles of the limbs are also attacked with fearful cramps, and, last of all, the muscles of the chest are involved. Though all these muscles are in a continuous state of contraction, spasmodic contractions, as already remarked, come on in addition, and occasionally with such distressing energy that the patient is doubled up forwards, backwards, or sideways, and, may be, some of the muscles tear across. The patient is bathed in perspiration, and sinks worn out and exhausted, or, perchance, slowly suffocated by the locking of the muscles of respiration.

As regards the prospect of recovery in tetanus it may be said that when the symptoms break out acutely within a week of the reception of an injury the prospect of recovery is ex­tremely remote. If they occur within ten days the prospects are bad. But if there is an interval of three weeks or a fortnight before their occurrence the case may be regarded more hope­fully.

In the treatment of tetanus the first thing to do is to try to make the wound by which infection has taken place surgically clean. For though a wound free from the germs of suppuration may be the incubating place of the bacilli of tetanus, still in most cases there is also an invasion of septic germs, and the double infection makes the action of the tetanic poison the more virulent. If the local conditions are such that it is impossible to cleanse the wound, the free use of the knife or of the cautery or of pure car­bolic acid may be resorted to, or an amputation may be performed. But even the early amputation of the infected part may not avail for the reason that the germs in the wound have already set free a lethal dose of their toxin.

The wound having been cleansed the further treatment of the disease demands absolute quiet in a darkened room. There must be. no slamming of the door, shaking of the bed, or the sudden bringing in of a light, for any act such as this might cause the outbreak of a violent spasm. Morphia may be given by the hypo­dermic syringe, and if the spasms are causing great distress chloro­form may be administered; indeed, in certain severe cases it may be necessary to keep the patient almost continuously under its influence. If there is difficulty in swallowing fluid, rectal feeding must be resorted to. Though at present one is unable to speak enthusiastically or with confidence about the antitoxin treatment of lockjaw, still it is a method which should certainly be given trial—and that early. The tetano-antitoxin is prepared from the blood of animals which have been rendered immune to repeated injections of the poison elaborated by the cultivation of the tetanus bacilli. The bacilli themselves are not injected, the injections being rendered sterile. By passing the sterile injections into one of the lower animals the blood of that animal prepares an antidote to them known as an antitoxin.

The antitoxin may be injected into the nerve trunks or into the sheath of the spinal cord or of the brain. But inasmuch as the nerves and. the nerve-cells are under the influence of the toxin before the antitoxin is administered—as evidenced by the occur­rence of the symptoms—the injection-treatment has but a poor chance of producing a good effect. (E. O.\*)

**TETRADYMITE,** a mineral consisting of bismuth telluride and sulphide, Bi2Te2S, also known as “ telluric bismuth.” Sometimes sulphur is absent and the formula is then Bi2Te3; traces of selenium are usually present. Crystals are rhom- bohedral, but are rarely distinctly developed; they are twinned together in groups of four; hence the name of the mineral, from the Greek, *τeτρaδυμos,* fourfold. There is a perfect cleavage parallel to the basal plane; and the mineral usually occurs in foliated masses of irregular outline. The colour is steel-grey, and the lustre metallic and brilliant. The mineral is very soft (H = 1½) and marks paper; the specific gravity is 7∙2 to 7∙6. It was first found, in 1815, at Telemarken in Norway; crystals are from Schubkau near Schemnitz in Hungary. It often occurs in quartz associated with native gold. Other species very similar to tetradymite, but with different formulae, are: *joseite,* from San José near Marianna in Brazil; *grünlingite* (Bi4S3Te), from Caldbeck Fells in Cumber­land; and *wehrlite,* from Hungary. **(L.** J. S.)

**TETRAGRAMMATON** (τέτταpα, four; *γράμμα,* letter), a Greek compound, found in Philo and Josephus, which designates the divine name composed of the four Hebrew letters J Η V H (nιπ,). The derivation and pronunciation of the Tetra- grammaton is still doubtful. The form “ Jehovah ” *(q.v.)* used in some of the English Versions is an error which arose in the 16th century. It is now generally assumed that the word is the causative form *(hiph'il)* and should be pronounced Yahveh or Yahweh (accent on second syllable). The Jews quite early ceased to pronounce the Tetragrammaton, substituting (as the Books of Chronicles and the LXX translation already indicate) the word Lord *(’Adonai).* The priests continued to use the name in the Benediction of the People (Numbers vi. 22-27), and on the Day of Atonement the High Priest pro­nounced it (Leviticus xvi. 30) amidst the prostrations of the assembled multitude. It is recorded in the Talmud that Rabbis communicated the true pronunciation to their disciples once in seven years *(Qiddushin,* 71a). The Jews called the Tetra­grammaton by a Hebrew denomination, *Shem Hammephorash* (BHtesrj oÿ), *i.e.* the distinctive excellent name. It was con­sidered an act of blasphemy for a layman to pronounce the Tetragrammaton. This avoidance of the original name was due on the one hand to reverence and on the other to fear lest the name be desecrated by heathens. Partly in consequence of this mystery and partly in accord with widespread super­stitions, the Tetragrammaton figures in magical formulae from the time of the Gnostics, and on amulets. Many a medieval miracle-worker was supposed to derive his competence from his knowledge of the secret of the Name.

TETRAHEDRITE, a mineral consisting typically of copper sulph-antimonite, Cu3SbSs, but often of complex composition. The copper is usually isomorphously replaced by variable amounts of silver, iron, zinc, mercury, lead or cobalt, and the antimony by arsenic or bismuth. In general, the formula is R'6X2Se+xR,βX2Ss, where R'=Cu, Ag; X = Sb, As, Bi; R' = Fe,∙ Zn, and *x* is a small fraction, often 1⅛ or ⅜. Numerous special names have been applied to varieties differing in chemical composition; the arsenic compound, CusAsS3, is known as tennantite (after Smithson Tennant). The old German name *Fahlen* includes both tetrahedrite and tennantite, and so does the term “grey copper ore” of miners. Tetrahedrite is an important ore of copper, the formula Cu3SbS3, corresponding with 57·5 per cent, of this metal; it is also largely worked as an ore of silver, of which element it sometimes contains as much as 30 per cent. Well-developed crystals are of frequent occur­rence; they belong to the tetrahedral class of the cubic system, and their tetrahedral form is a very characteristic feature of the mineral, which for this reason was named tetrahedrite. Fig. 1 shows a combination of a tetrahedron and a triakis-tetrahedron {211}, and fig. 2 a tetrahedron with the rhombic dodecahedron. Interpenetrating twinned crystals sometimes occur. The colour is steel-grey to iron-black, and the lustre metallic and brilliant. The streak is usually black; sometimes, however, it is dark cherry-red, and very thin splinters of the mineral then transmit a small amount of blood-red light. The hardness is 4∣, and the specific gravity varies with the composition from 4∙4 to 5∙1. There is no cleavage, and the fracture is conchoidal. The material is often very impure owing to intimate inter­mixture with chalcopyrite.

Tetrahedrite occurs in metalliferous veins associated with chal­copyrite, pyrites, blende, galena, &c. Fine groups of crystals, coated on their surface with brassy or brilliantly tarnished chal­copyrite, were formerly found at Herodsfoot mine, near Liskeard in Cornwall. Good crystals are also met with at Kapnik-Banya in Hungary, in the Harz, Peru, and other places. Tennantite occurs as small crystals of cubic or dodecahedral habit in many