can have little motion cither way, because they are pressed almoſt equally on all sides. For the moſt part, however, the well wind prevails, and what little motion the clouds have is towards the eaſt: whence the common remark in this country, that “ thunder-clouds move againſt the wind.” But this is by no means univerſally true : for if the west wind happens to be excited by any temporary cauſe before its natural period when it ſhould take place, the eaſt wind will very frequently get the better of it ; and the clouds, even although thunder is produced, will move weſtward. Yet in either case the motion is ſo slow, that the moſt ſuperficial obſervers cannot help taking notice of a conſiderable reſiſtance in the atmoſphere.

That when two ſtreams of air are thus driven againſt each other, the ſpace where they meet must become highly elec­trified, is as plain as that an electric globe muſt be excited when friction is applied. It *is* true, as the subſtances here to be excited are both electrics *per se,* it may be objected, that no electricity could be produced ; for we cannot excite one electric by rubbing it with another. Yet it is obſerved, that glaſs may be electrified by blowing ſtrongly upon it, or by the explosion of cannon ; and even when glaſs is ſtrongly presſed upon glaſs, both pieces become electrified as ſoon as they are ſeparated. When glaſs is rubbed upon glaſs, no attraction nor repulsion can be perceived, nor is any ſign of electricity obſerved on bodies brought near to it ; yet a very bright electric light always appears on the glaſſes, and a phoſphoreal ſmell is felt ; which shows, that though the electricity does not fly out through the air in the uſual way, yet the fluid within the glaſs is agitated ; and there is little reaſon to doubt that any conducting body in- cloſed within the ſubſtance of the glaſs would be electrified also. The vapours therefore, which are the conducting ſubſtances in the atmoſphere, become immediately electrified in conſequence of the preſſure above-mentioned, and all the phenomena deſcribed under the various articles already re­ferred to take place.

In like manner, by the ſtruggle of two other winds as well as thoſe of the eaſt and well, may a thunder ſtorm be produced ; but it is always neceſſary that the reſiſtance of the air to the motion of the clouds ſhould be very great, and nearly equal all round. For if the vapour ſhould get off to a side, no thunder would take place ; the electricity would then be carried off as faſt as it was collected, and rain would only be the conſequence, by reaſon of the elec­trified vapours parting with their latent heat, as is explain­ed under the article Ra n. In fact, we very often observe, that in the time of rain the clouds evidently move across the wind, and the nearer their motion is to a direct oppoſition, the heavier will the rain be : while, on the other hand, if they move briſkly before the wind, let the direction be what it will, the atmosphere ſoon clears up.

That rattling in the noiſe of thunder which makes it ſeem as if it passed thro’ arches, or were varicuſly broken, is pro­bably owing to the found being excited among clouds hang­ing over one another, and the agitated air passing irregular­ly between them The exploſion, if high in the air, and remote from us, will do no miſchief ; but when near, ſt may deſtroy trees, animals, &c. This proximity or ſmall diſtance may be eſtimated nearly by the interval of time between seeing the flaſh of lightning and hearing the report of the thunder, eſtimating the distance after the rate of 114 feet *per* ſecond of time, or three two thud seconds to the mile. Dr Wallis observes that commonly the difference between the two is about ſeven seconds, which, at the rate above mentioned, gives the diſtance almoſt two miles. But ſometimes it comes in a ſecond or two, which argues the exploſion very near us, and even among us. And in ſuch caſes, the Doctor aſſures us, he has ſometimes foretold the miſchiefs that happened.

The noiſe of thunder and the flame of lightning are eaſily made by art. If a mixture of oil or ſpirit of vitriol be made with water, and ſome filings of ſteel added to it, there will immediately ariſe a thick ſmoke or vapour out of the mouth of the vessel ; and if a lighted candle be applied to this, it will take fire, and the flame will immediately deſcend into the veſſel, which will be burſt to pieces with a noiſe like that of a cannon.

This is ſo far analogous to thunder and lightning, that a great exploſion and fire are occaſioned by it ; but in this they differ, that this matter when once fired is deſtroyed, and can give no more exploſions ; whereas, in the heavens, one clap of thunder uſually follows another, and there is a continued ſucceſſion of them for a long time. Mr Homberg explain­ed this by the lightneſs of the air above us in companion of that near, which therefore would not ſuffer all the matter ſo kindled to be diſſipated at once, but keeps it for ſeveral returns.

Reſpecting the phenomena of thunder, we have many obſervations to communicate ; ſome of which, we flatter ourſelves, are new, and all of them valuable ; but our bounds obliges us, though with great reluctance, to paſs them over.

THUNDERBOLT. When lightning acts with ex­traordinary violence, and breaks or ſhatters any thing, it is called a *thunderbolt,* which the vulgar, to fit it for ſuch ef­fects, ſuppoſe to be a hard body, and even a ſtone. But that we need not have recourse to a hard ſolid body to ac­count tor the effects commonly attributed to the thunder­bolt, will be evident to any one who conſiders thole of the pulvis fulminans and of gunpowder ; but more eſpecially the aſtoniſhing powers of electricity, when only collected and employed by human art, and much more when directed and exerciſed in the courſe of nature.

When we conſider the known effects of electrical explo­ſions, and thoſe produced by lightning, we ſhall be at no loss to account for the extraordinary operations vulgarly aſcribed to thunderbolts. As ſtones and bricks ſtruck by lightning are often found in a vitrified ſtate, we may reasonably ſuppoſe, with Beccaria, that ſome ſtones in the earth having been ſtruck in this manner, gave occaſion to the vulgar opinion of the thunderbolt.

*Thunder-House.* See Electricity, p. 474.

THURINGIA, a division of the circle of Upper Saxo­ny in Germany. It is a fruitful tract, abounding in corn, eſpecially wheat ; in black cattle, ſheep, and horſes. It is about 73 miles in length, and as much in breadth. It contains 47 towns, 14 boroughs, betwixt 700 and 800 vil­lages, 300 noble eſtates, 7 ſuperintendencies, and 5 underconſiſtories. Thuringia, the country of the ancient Thuringi, or Catti, a branch of the Vandals, mentioned by Ta­citus, was formerly a kingdom, afterwards a county, then a landgravate, and was governed by its own princes for many ages, till 1124, when it devolved to the marquis of Miſnia, and, with that country, afterwards to the duke of Saxony. But the modern Thuringia is only a part of the ancient, nay, but a part of the ancient South Thuringia, which com­prehends beſides, a large ſhare of the modern Franconia, Hesse, &c. On the extinction of the male line of the an­cient landgraves in 1247, it came to the margraves of Meiſien. ancestors to the present electoral family. The elector has no voice in the diet, on account of his ſhare in the land- gravae or circle of Thuringia. Erfurt is the capital.

THURLOE (John), an Engliſh ſtateſman under Oli­ver Cromwell, was born at Abots Roding in Essex in 1616,of which pariſh his lather was rector, and was educated to