they require only half the lengths necessary for the open pipes of an organ, or for conical tubes pro­vided with reeds, to produce notes of the same pitch. Moreover, when, to obtain a harmonic, the column of air is divided, the tournebout will not give the octave like the oboe and bassoon, but the twelfth, corre­sponding in this peculiarity with the clarinet and all stopped pipes or bourdons. With the ordinary boring of eight lateral holes, the tournebout possesses a limited scale em­bracing a ninth Sometimes, however, the deeper sounds are completed by the addition of one or more keys. By its structure the tournebout is one of the oldest wind instru­ments ; it is evidently derived from the Greek *aulos* and the Roman *tibia,* which consisted equally of a simple cylindrical pipe of which the column of air was set in vibration by a double reed.

Notwithstanding the successive improve­ments that were introduced in the manu­facture of wind instruments, the tournebout scarcely ever varied in the details of its construction. Such as we see it represented in the treatise by Virdung@@1 we find it again about the epoch of its dis­appearance, in *L’Art du Faiseur d’Instruments de l'Encyclopédie de Diderot et d’Alembert* (Paris, 1751-80).

The tournebouts existed as a com­plete family from the 15th century. According to Virdung, it was formed of four individual instru­ments; Prætorius@@2 cites five,—the deep bass, the bass, the tenor or alto, the cantus or soprano, and the high soprano, with com­pass respectively of

A band, or, to use the expression of Præ- torius, an “accort,” of tournebouts compre­hended—1 deep bass, 2 bass, 3 alto-tenor, 2 cantus (soprano), 1 high soprano = 9.

The tournebouts were not always an orchestra by themselves; they allied themselves also to other instruments, and notably to flutes and oboes. It was thus that the little groups of musicians in the service of princes, or those engaged by some large town on the occasion of a festival or public ceremony, were composed of several tournebout players combined with some flautists and oboe players. In 1685 the orchestra of the Neue Kirche at Strasburg comprised two tournebouts, and until the middle of the last century these instruments formed part of the music called “la grande ecurie” in the service of the French kings. Tournebouts have in our days become of extreme rarity, and scarcely exist in collections. The museum of the Conservatoire Royal de Musique at Brussels has the good fortune to possess a complete family, which is regarded as having belonged to the duke of Ferrara, Alphonso II. d’Este, a prince who reigned from 1559 to 1597. The soprano (cantus or discant) has the same compass as above, while the alto, the tenor (furnished with a key), and bass have an extent respectively of

The bass (see accompanying figure), besides having two keys, is distinguished from the others by a kind of small bolt, two of which slide in grooves and close the two holes that form the lowest notes of the instrument. It is very curious to observe that the employ­ment of these bolts, placed at the extremity of the tournebout and out of reach of the fingers of the instrumentalist, forces him to require the assistance of a person whose sole mission is to attend to these bolts during the performance.

The “Platerspil” of which Virdung gives a drawing is only a kind of tournebout. It presents especially the peculiarity that,

instead of having a cap to cover over the reed, there is a spherical receiver surrounding the reed, to which the tube for insufflation is adapted. This receiver was of wood worked round, or perhaps consisted of a simple gourd. (V. M.)

TOURNEFORT, Joseph Pitton de (1656-1708), a botanist of considerable reputation, was born at Aix, in Provence, in 1656. He studied in the convent of the Jesuits at Aix, and was destined for the church, but the death of his father left him free to follow his botanical inclinations. After a couple of years collecting, he studied medicine at Montpellier, but soon returned to his favourite pursuit, and was appointed professor of botany at the Jardin des Plantes in 1683. By the king’s order he travelled through western Europe, where he made very ex­tensive collections, and subsequently spent three years in Greece and Asia Minor (1700-1702). Of this journey a description in a series of letters was posthumously pub­lished in 3 vols. *(Relation d’un Voyage du Levant,* Lyons, 1717). His principal work is entitled *Institutiones Rei Herbariæ* (3 vols., Paris, 1700), and upon this rests chiefly his claims to remembrance as one of the most eminent of the systematic botanists who prepared the way for Linnaeus. His exact position among these has been dis­cussed at length by Sachs *(Geschichte d. Botanik,* Munich, 1875). He died December 28, 1708.

TOURNEUR, Cyril, a tragic poet of the first order, has left no record of his existence beyond the respective dates of his first and last extant works (1600-1613). An allegorical poem, worthless as art and incomprehensible as allegory, is the earliest of these ; an elegy on the death of Prince Henry, son of James L, is the latest. The two plays on which his fame rests, and on which it will rest for ever, were published respectively in 1607 and 1611, but all students have agreed to accept the internal evidence which assures us that the later in date of publication must be the earlier in date of composition. His only other known work is an epicede on Sir Francis Vere, of no great merit as poetry, but of some value as conveying in a straightforward and masculine style the poet’s ideal con­ception of a perfect knight or “happy warrior,” comparable by those who may think fit to compare it with the more nobly realized ideals of Chaucer and of Wordsworth. But if Tourneur had left on record no more memorable evi­dence of his powers than might be supplied by the survival of his elegies, he could certainly have claimed no higher place among English writers than is now occupied by the Rev. Charles Fitzgeoffrey, whose voluminous and fervent elegy on Sir Francis Drake is indeed of more actual value, historic or poetic, than either or than both of Tourneur’s elegiac rhapsodies. The singular power, the singular originality, and the singular limitation of his genius are all equally obvious in *The Atheist’s Tragedy,* a dramatic poem no less crude and puerile and violent in action and evolution than simple and noble and natural in expression and in style. The executive faculty of the author is in the metrical parts of his first play so imperfect as to sug­gest either incompetence or perversity in the workman; in *The Revenger’s Tragedy* it is so magnificent, so simple, impeccable, and sublime, that the finest passages of this play can be compared only with the noblest examples of tragic dialogue or monologue now extant in English or in Greek. There is no trace of imitation or derivation from an alien source in the genius of this poet. The first editor of Webster has observed how often he imitates Shakespeare; and, in fact, essentially and radically inde­pendent as is Webster’s genius also, the sovereign influence of his master may be traced not only in the general tone of his style, the general scheme of his composition, but now and then in a direct and never an unworthy or imperfect echo of Shakespeare’s very phrase and accent. But the resemblance between the tragic verse of Tourneur

*@@@1 Musica getutscht und auszgezogen,* Basel, 1511.

*@@@2 Organographia,* Wolfenbüttel, 1618.