and eh, but also, as will be seen by his table of fingering in §436, to improve other notes. Neither the description of this flute, nor the method of playing upon it, was published until 1752, but as the extra key was added in 1726, the flute and its fingering are described in this place.

With the exception of the two keys for  $d^{\sharp}$  and  $e\mathfrak{h}$ , the flute of Quantz seems to have been of the usual pattern of the period; it was probably made of box-wood or ebony; it consisted of four pieces, and there were five extra second joints of different lengths for altering the pitch, as described in §326; it was provided with a screw-cork, and its circular mouth-hole had a diameter of .4 inch. Though Quantz lays great stress on the importance of the dimensions of the bore and the thickness of the wood, he supplies no measurements for either, nor does he give any indications of the sizes or positions of the finger-holes, but it is evident from the fingering that the latter were considerably less than those of Mersenne's flute.

Quantz, writing, as he says, more than twenty years after the introduction of the second key, deplores the absence of a general recognition of its merits. As a matter of fact, his key does not appear to have been used out of Germany, although it was constantly made and highly recommended by Tromlitz of Leipsic down to the beginning of the present century, and although the work of Quantz (1752) obtained a European celebrity.

435. Quantz's Fingering. The uses of the two keys will be easily understood from Quantz's table of fingering, given in the next section. The tuning was so arranged that the diatonic semitone, d to e, (made by opening the key marked r in the table) was one fourth greater than the chromatic semitone d to d, (made by opening the key marked 2). Quantz considered the meantone to consist of nine commas  $\frac{81}{80}$ , which is not very far beyond the truth, and he allotted five commas to the diatonic semitone and four to the chromatic semitone. He says that by means of the alternate use of these two keys the common chords of e, and b, were rendered perfectly in tune.



In the examination of the following table it should be remembered that the meantone temperament, or as near an approach to it as could be obtained, was in general use in the time of Quantz, therefore he was perfectly consistent in making the enharmonic differences (such as those between  $d \not \models$  and  $e \nmid$ , e and  $f \nmid$ ), and though he did not succeed in obtaining twenty-seven notes to the octave (see §269) it will be seen that he used eighteen in the first octave and twenty-five in the second, which rendered the scale, from his point of view, much more correct than it would have been with thirteen.

436. The following fingerings are transcribed from the original table of Quantz, but their arrangement has been altered in order that they might be conveniently compared.



