ON LINEAR NOTATIONS AND THE BOSANQUET KEYBOARD

This is a tentative approach toward a specifically linear notation for the Bosanquet keyboard system. It is the primary intent of this notation to facilitate and expedite the performance of musical works on the keyboard. It is not the intent of this notation to supply specific tuning information with each written note. This could better be provided apart from and before performance begins. This does not attend to the problems of notations other than linear, nor to notating for instruments other than the Bosanquet keyboard.

It is apparent that the Bosanquet geometry is hospitable to various families of tuning systems. While the keyboard is conceived as having 12 vertical ranks in the "Octave", it may also be seen as having 7 ranks running right-oblique, and as having 5 ranks running left-oblique. The families of systems may be grouped according to the number of ranks, and whether the pitches ascend or descend along the rank.

Vertical, 12-rank, pitches ascending
Duodecimally positive systems ("Fifth" greater than 7/12 "8ve")
(5, 7, 12) 17, 29, 41, 53, 65, etc

Vertical, 12-rank, pitches descending
Duodecimally negative systems ("Fifth" less than 7/12 "Octave")
(5, 7, 12) 19, 31, 43, 55, etc

Right-oblique, pitches ascending, 7-rank
Septimally negative systems ("Fifth" less than 4/7 "Octave")
(2, 5, 7) 9, 16, 23, etc

Right-oblique, 7-rank, pitches descending
Septimally positive systems ("Fifth" larger than 4/7 "Octave")
(5, 7) 12 19 26 etc

Left-oblique, 5-rank, pitches ascending
Quintally positive systems, ("Fifth" greater than 3/5 "Octave")
(3, 5) 8, 13, 18, 23, etc

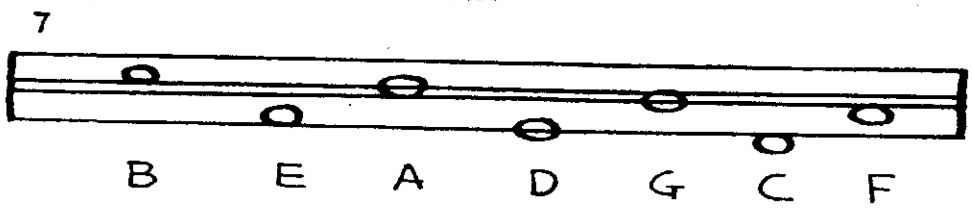
Left-oblique, 5-rank, pitches descending
Quintally negative systems, ("Fifth" less than 3/5 "Octave")
(2, 5) 7, 12, 17, 22, etc

By "system" I do not limit the meaning to closed equal cycles. If the beginning member of a linear series forms (in this case) a "quasi-fifth" to the ending member of the series, which subtends the same number of scale-degrees as the remaining (typical) "Fifths" of the series -- a moment-of-symetry is formed having scale-like and systematic properties. These are important, and I will go more into them at another time.

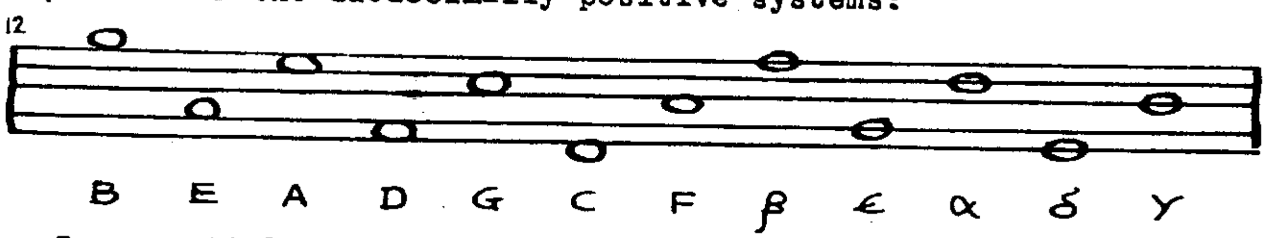
The member systems of each family may share the same notation, but each family requires a different notational treatment in order to be melodically consistant. Geometric consistancy is no problem. Occasionally the matter of how we chose to 'spell' presents a problem. To accomplish notation where each family of systems is both geometrically and melodically treated a linear set of nominal symbols is used. These are supplemented with set(s) of linear, alteration signs.

The linear set of 7 nominal symbols is:

Its advantage is its familiarity-- to those who have already learned it. But a set like this would be identical for all octaves, and easier to learn:



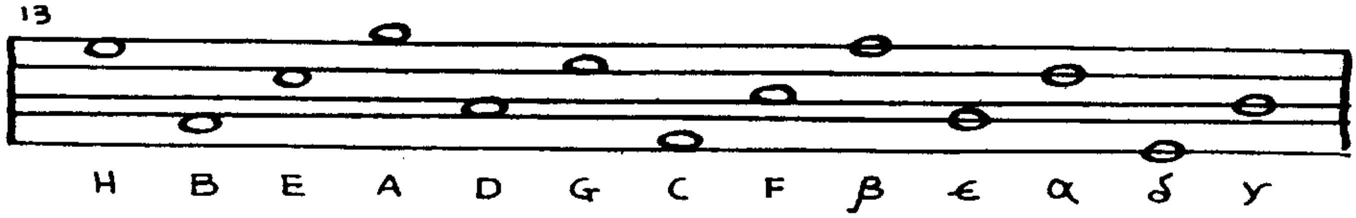
A linear set of 12 nominal symbols seems especially appropriate for the duodecimally positive systems:



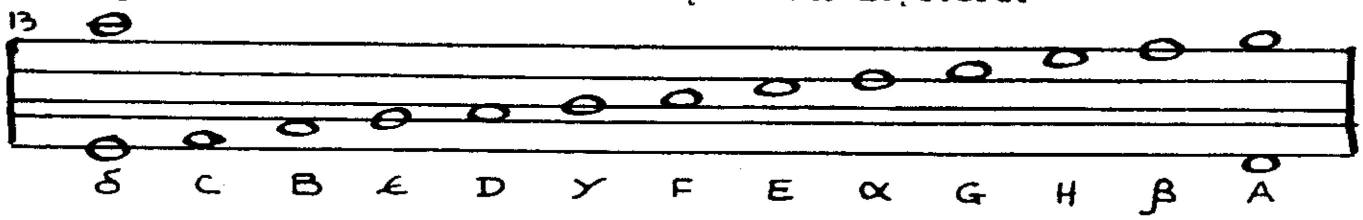
I am partial to this approach.
It is easy to learn and simple to use, and relates visually to the keyboard; the white keys are in the spaces, and the black keys are on the lines. 12 could be put on the familiar staff, and would gain some advantage of familiarity, but would lose on other grounds:

The triangular notes are the black keys. They are clumsy to write, and do slow you down. Nevertheless, the approach probably merits the mentioning.

For the quintally positive systems a linear set of 13 nominal symbols is used:



Perhaps I should spell these out in melodic sequence as well. Hang on! It works out beautifully on the keyboard:



For septimally positive systems one may use either a linear set of 7 nominal symbols or a linear set of 12. These are shown.

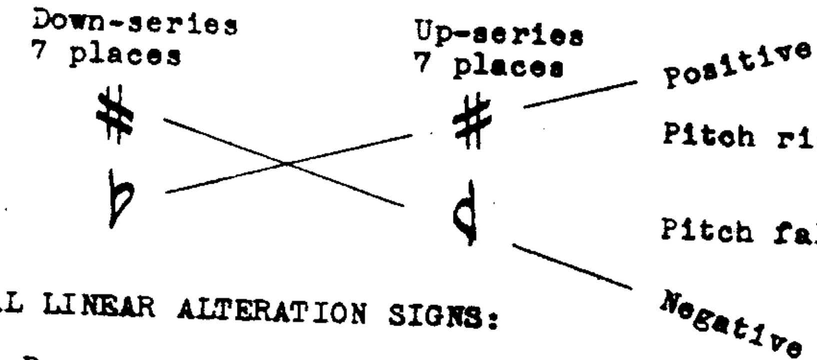
For septimally negative systems one may use a linear set of 7 nominal symbols- BUT - the 'flats' will be above the 'naturals'. I think a better picture is got if one adopts a linear set of 9 nominal symbols, instead: (these are the Blasquintenzirkel systems, appropriate to Pelog)

There is a fairly good argument for retaining the traditional staff and linear set of 7 nominal symbols for the duodecimally negative systems. This,because of traditional practice. However, one may find it just simpler, in highly microtonal work to use the duodecimal staff and the linear set of 12 nominal symbols.

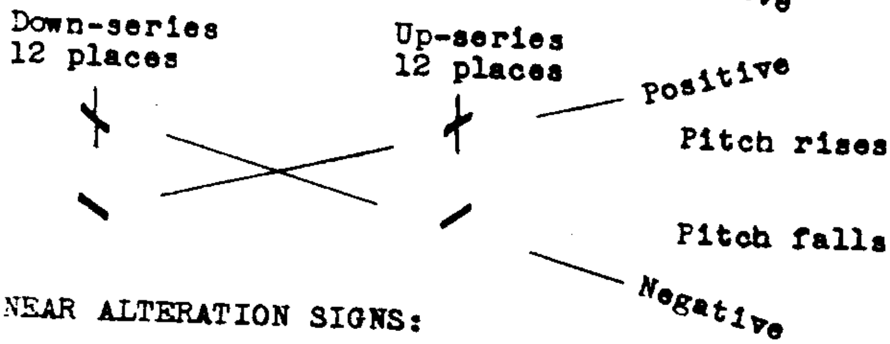
There is very little established tradition in the duodecimally positive systems. And particularly little in the West. In very simple materials one may use the the traditional staff and the conventional linear set of 7 nominal symbols. When one gets into Eikosany (3 out of 6,1·3·5·7·9·11 combinations set, for example) or Partchian materials (1 3 5 7 9 11 X $\overline{1}$ $\overline{3}$ $\overline{5}$ $\overline{7}$ $\overline{9}$ $\overline{11}$ cross-set) septimal notation may get so impossibly involved that it may well be simpler to learn duodecimal notation than to try to go thru all the mental gymnastics required to spell these materials in an academically correct manner. The beginning student is ahead to go duodecimal symbols and staff forthwith. For us old-timers, I must admit the familiar 5-line staff is comfortably reassureing. Even if it has nothing but white sound writen on it.

To the linear sets of nominal symbols may be associated one or more, as appropriate, species of linear alteration signs. "Downseries", here, refers to down the series of "Fifths", which on the Bosanquet also leads "Downkeyboard". "Upseries" is up the series of "Fifths", and Upkeyboard by that series. "Upkeyboard or Upseries 7 places" means "up the keyboard, or up the series of "Fifths" 7 places.

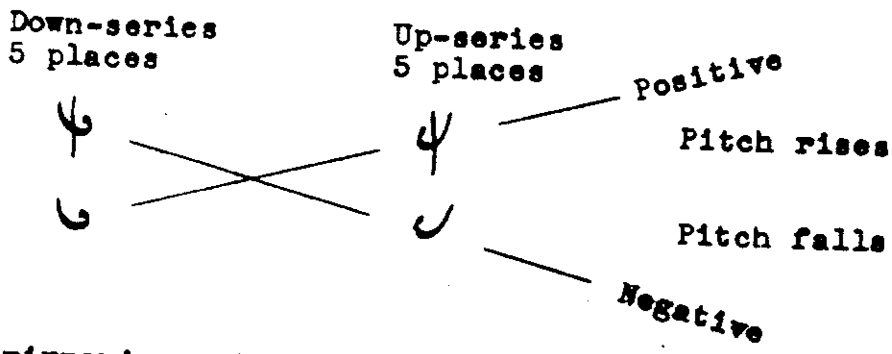
SEPTIMAL LINEAR ALTERATION SIGNS:



DUODECIMAL LINEAR ALTERATION SIGNS:



QUINTAL LINEAR ALTERATION SIGNS:



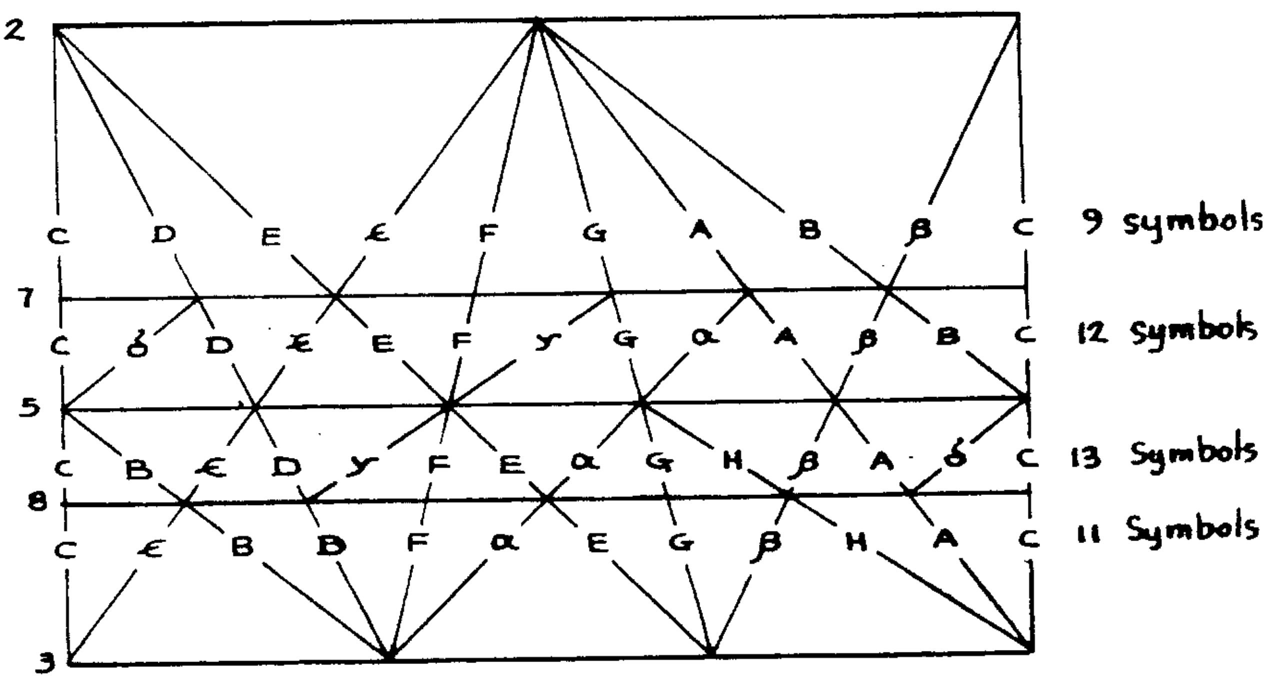
These are mirroring sets. One is not likely (it is to be hoped) to use both positive and negative alteration signs in the same context! Therefore there is little chance of visual confusion of the similar signs.

In some contexts one may wish to use highly specialized alteration signs. Novenal or Tridecimal alteration signs, for example. I have not adequately attended to these. I need to experiment more with the septimally negative and quintally positive systems before expressing a view on this.

BY WAY of further explanation--

Letters of the alphabet are not ill-suited to representing variables. If we are going to adapt traditional notation to new systems, obviously <u>something</u> is going to have to give. We cannot retain <u>all</u> levels of meaning. In this approach I have elected to retain the linear definition of the symbols, and to allow the melodic values to vary. This means, for example that sometimes linear B can be higher than C, or that linear E♭ may occur above E♮. The implication is that the symbol must rely upon context for it's meaning. And that a symbol out of context is meaningless. (I recognize that for some very gifted musicians the idea of "C-sharp" does have an absolute and independent existence. Perhaps this approach to notation is not for them.) On paper this will sometimes look a bit odd, but on the keyboard it works out. This little diagram may show as quickly as anything, what is happening to the melodic relation between the nominals as the size of the generating "Fifth" varies.

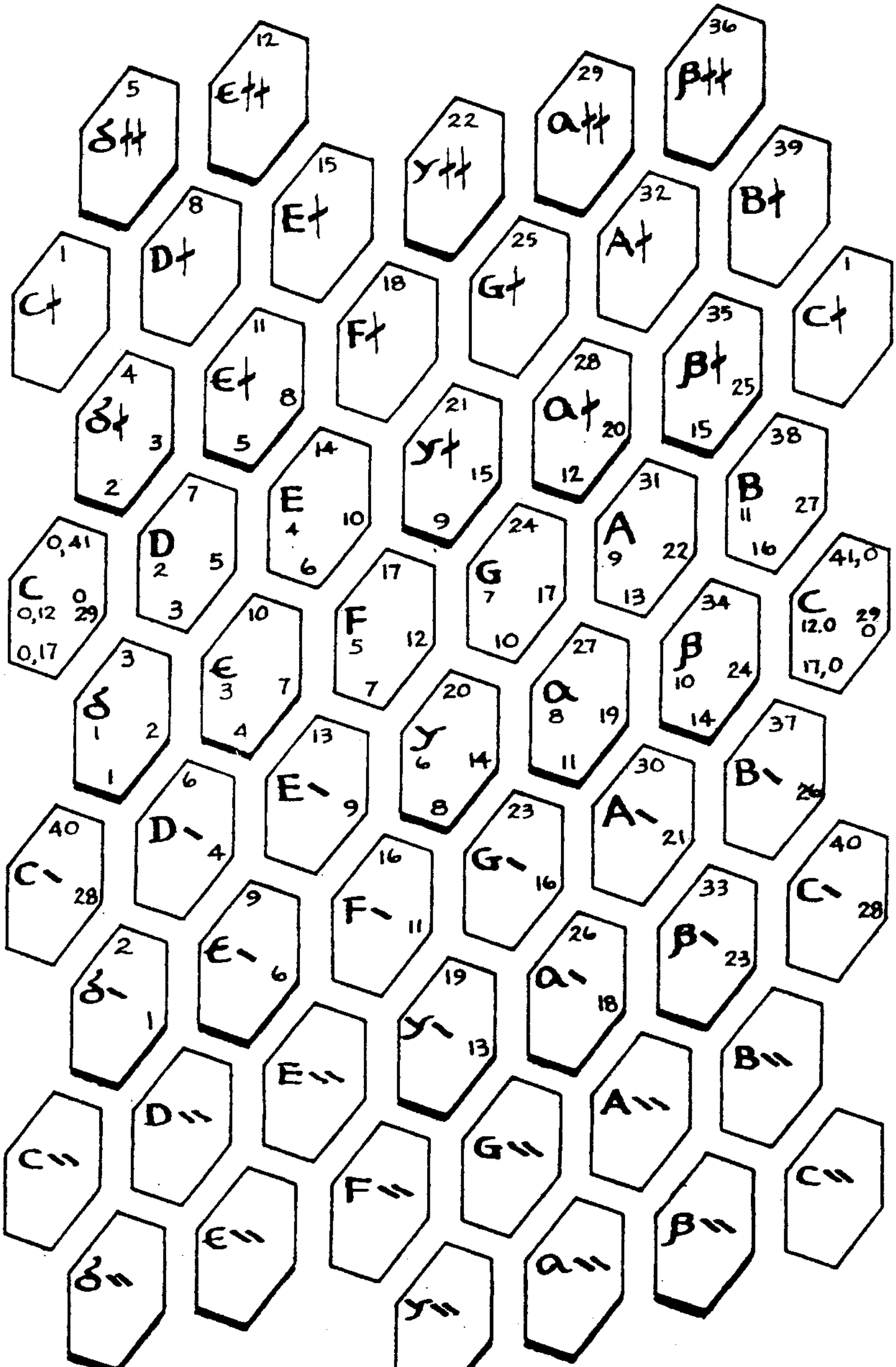
A System of Fluctuating Nominal Symbols



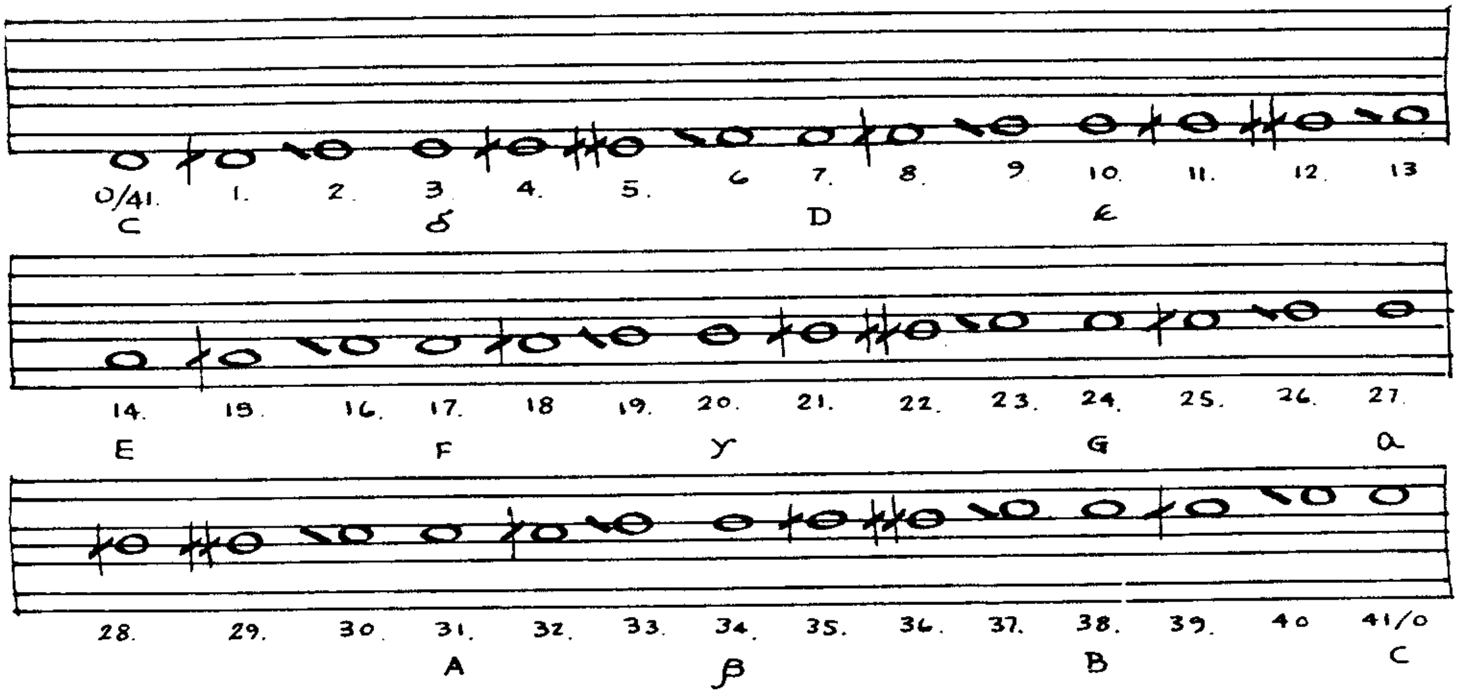
In the examples I have used 9, 12, 13, & 11 nominal symbols. I have avoided using 7 nominals for the time, because there is anything but a concord in the view that these represent a linear set! Nor have I touched on the use of 5 and 8 nominals, which may be useful in some circumstances.

Notations for systems developed by linear semi-fifths and linear semi-fourths remain to be explored. These are not for the Bosanquet keyboard. I will approach these questions elsewhere.

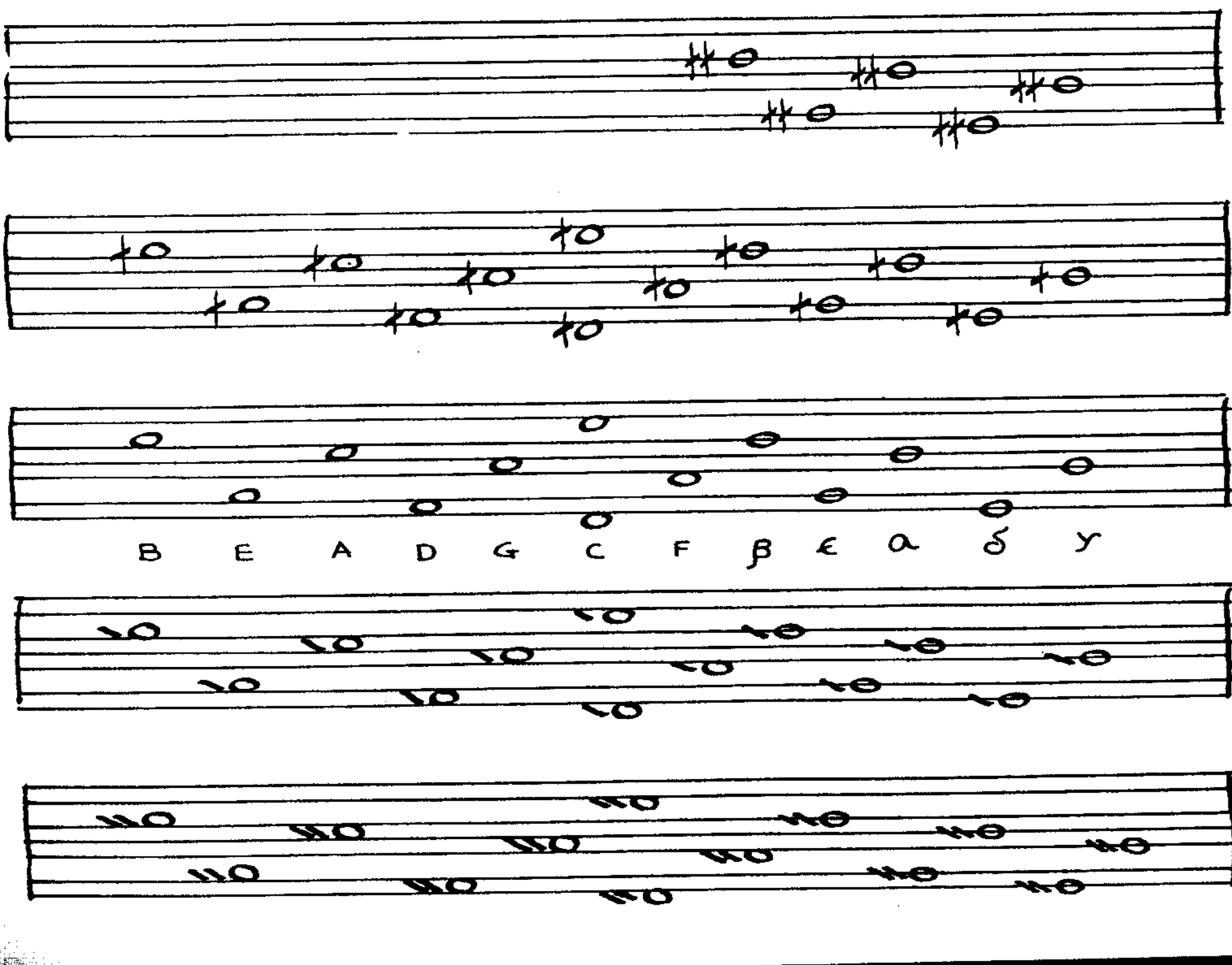
"Positive" notation of the Keyboard



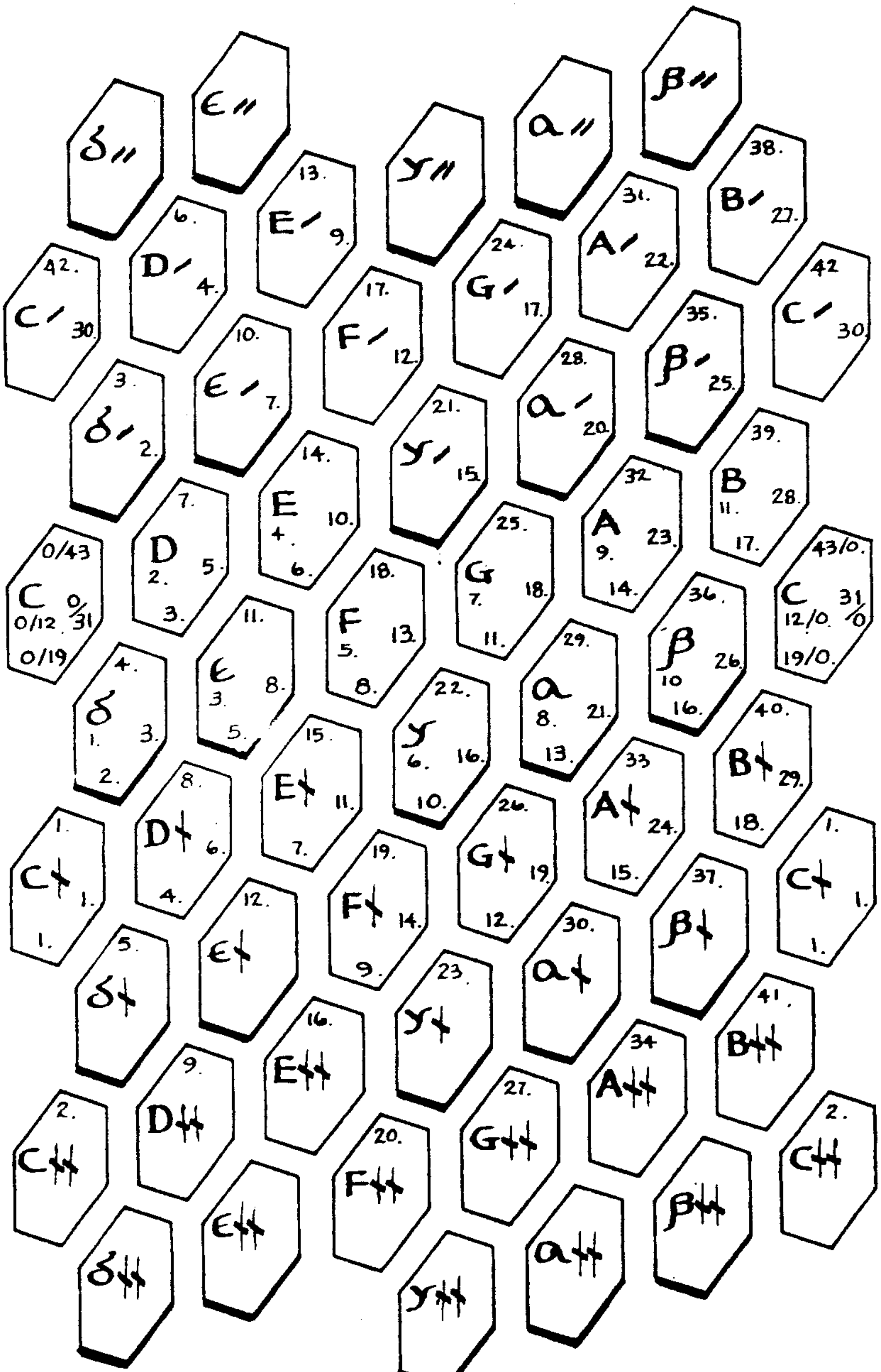
"Positive" notation of 41, in melodic series



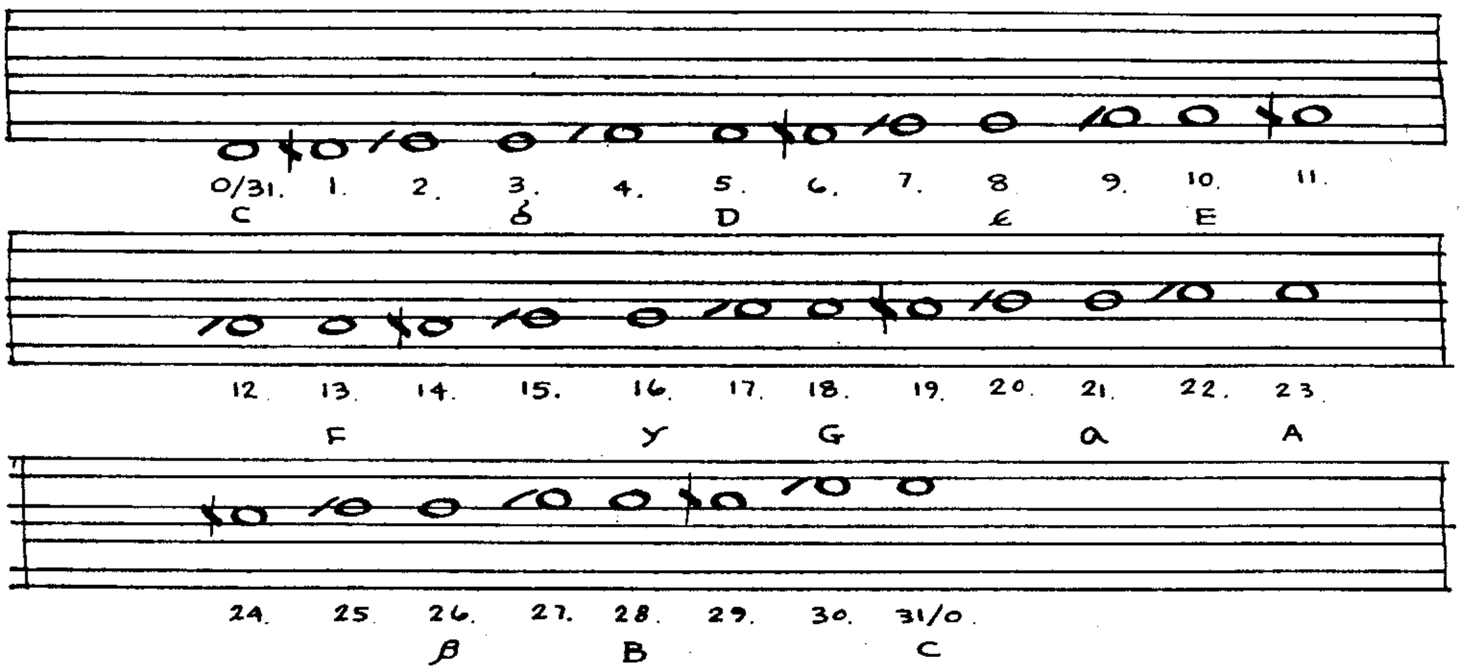
"Positive" notation of keyboard, in linear series



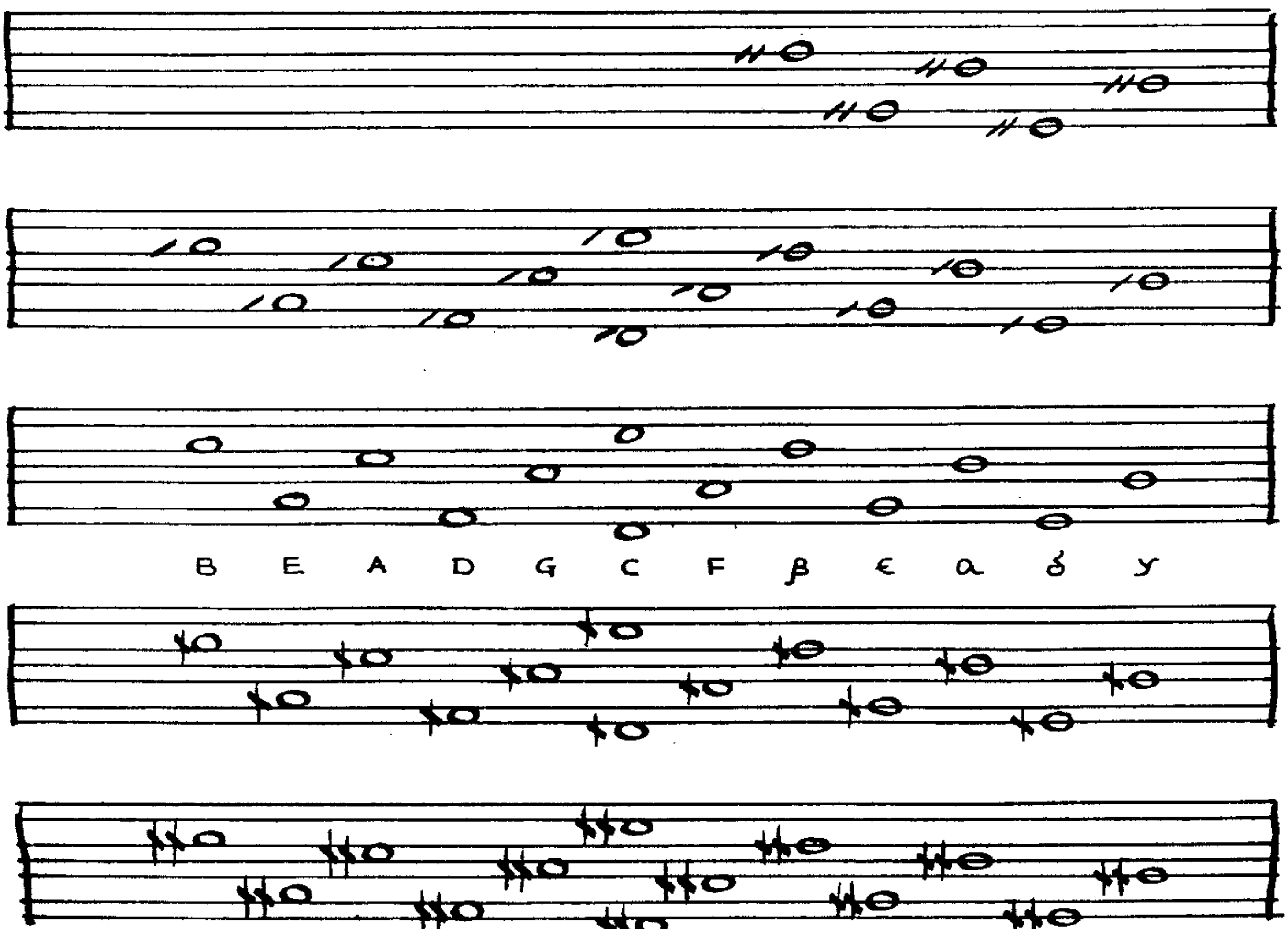
"Negative" notation of the keyboard.



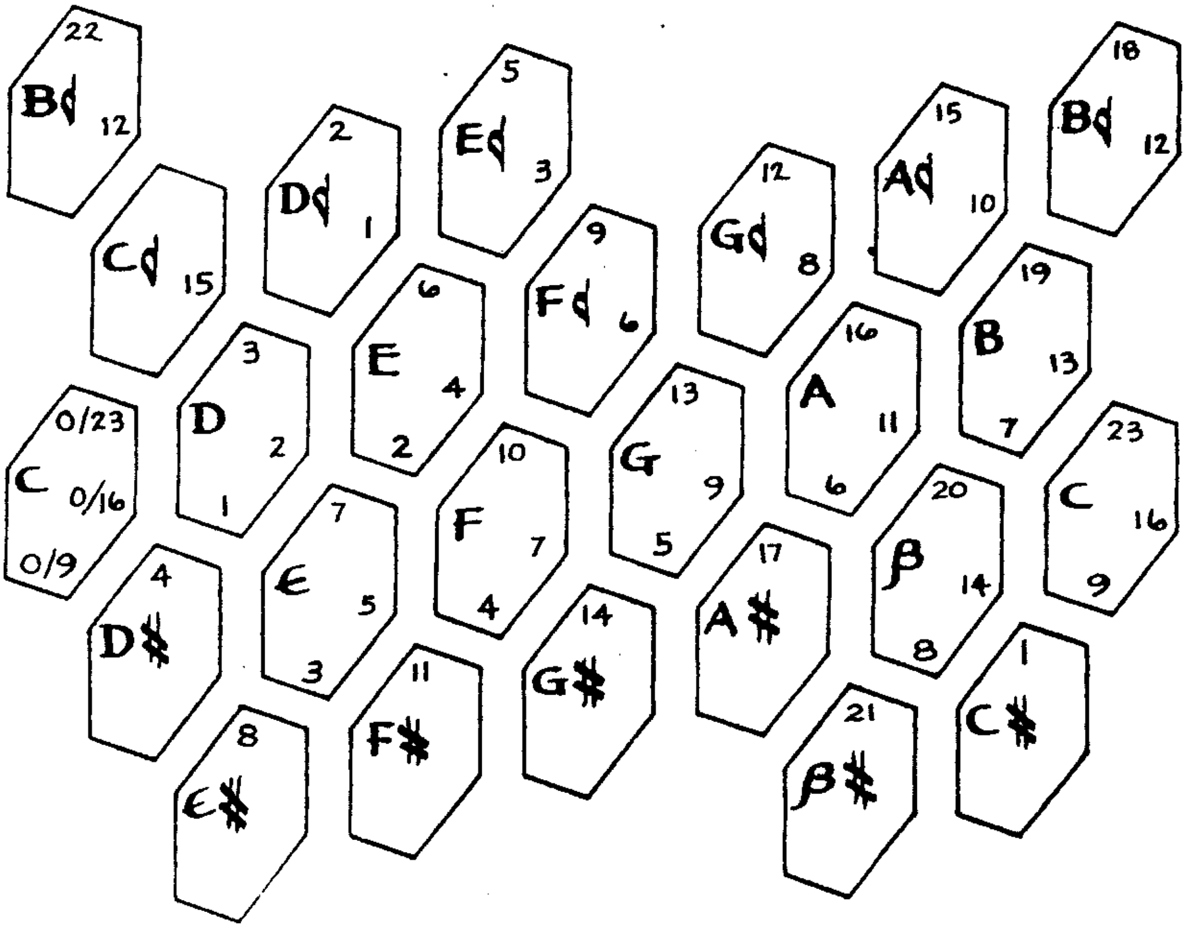
"Negative" notation for 31, in melodic series



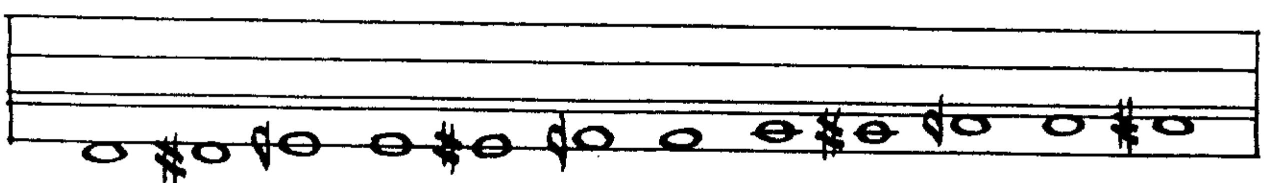
"Negative" notation for the keyboard, in linear series



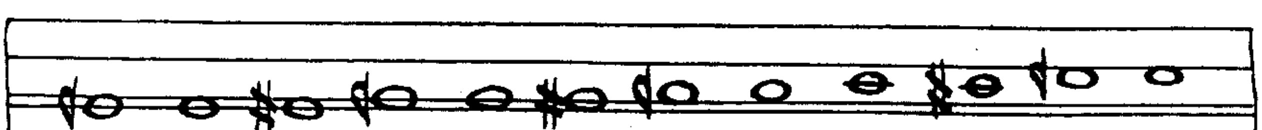
Keyboarding "Septimally Negative" systems



and notation

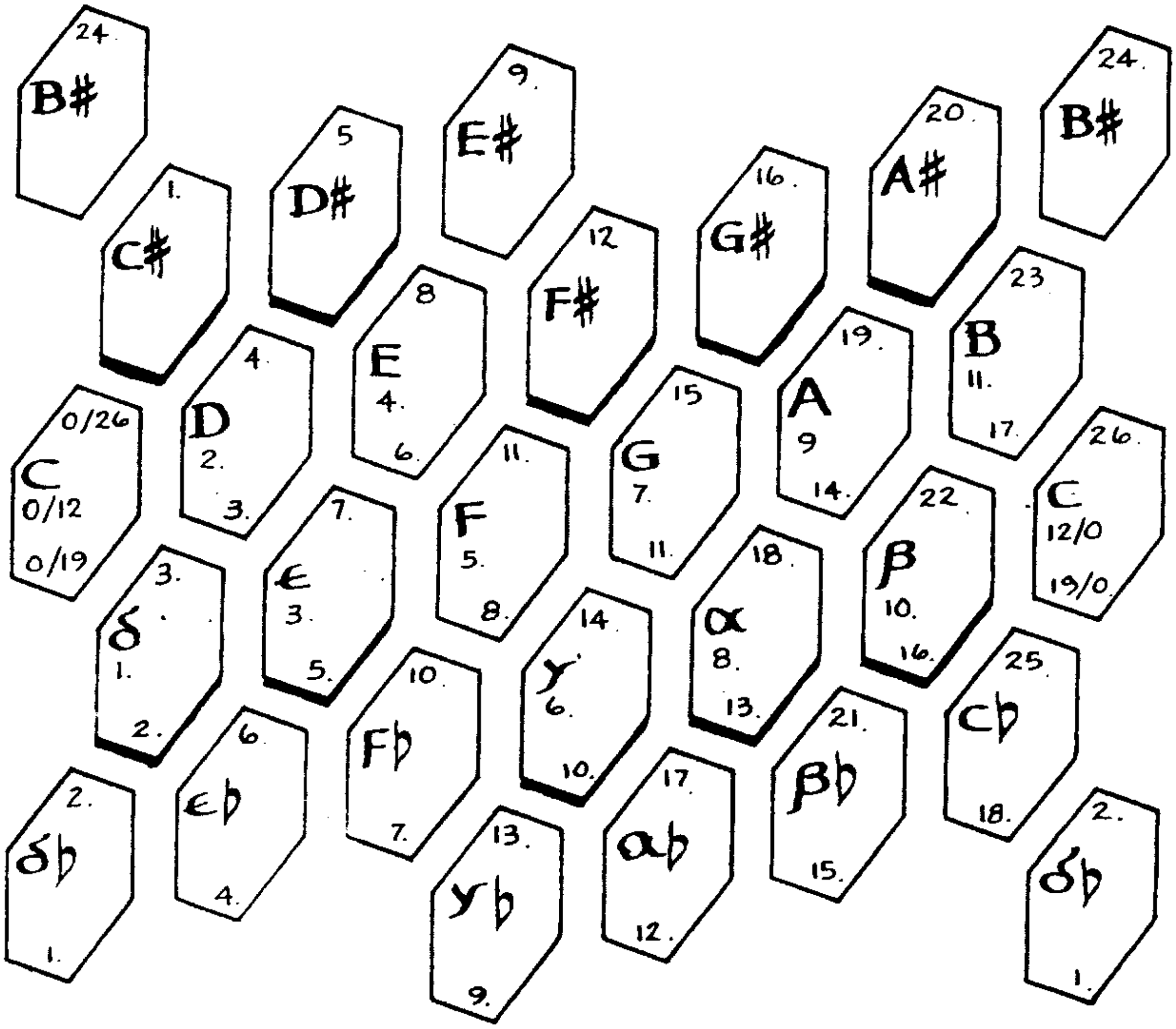


0,23 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.
C D E Є F

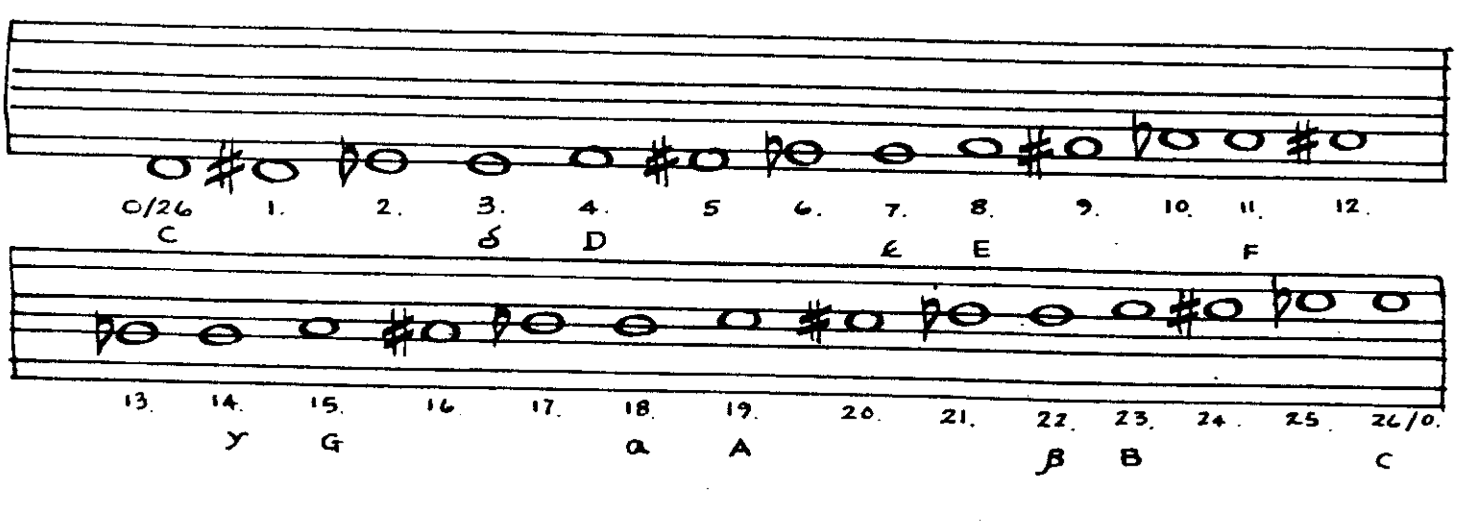


12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23,0.
G A B β C

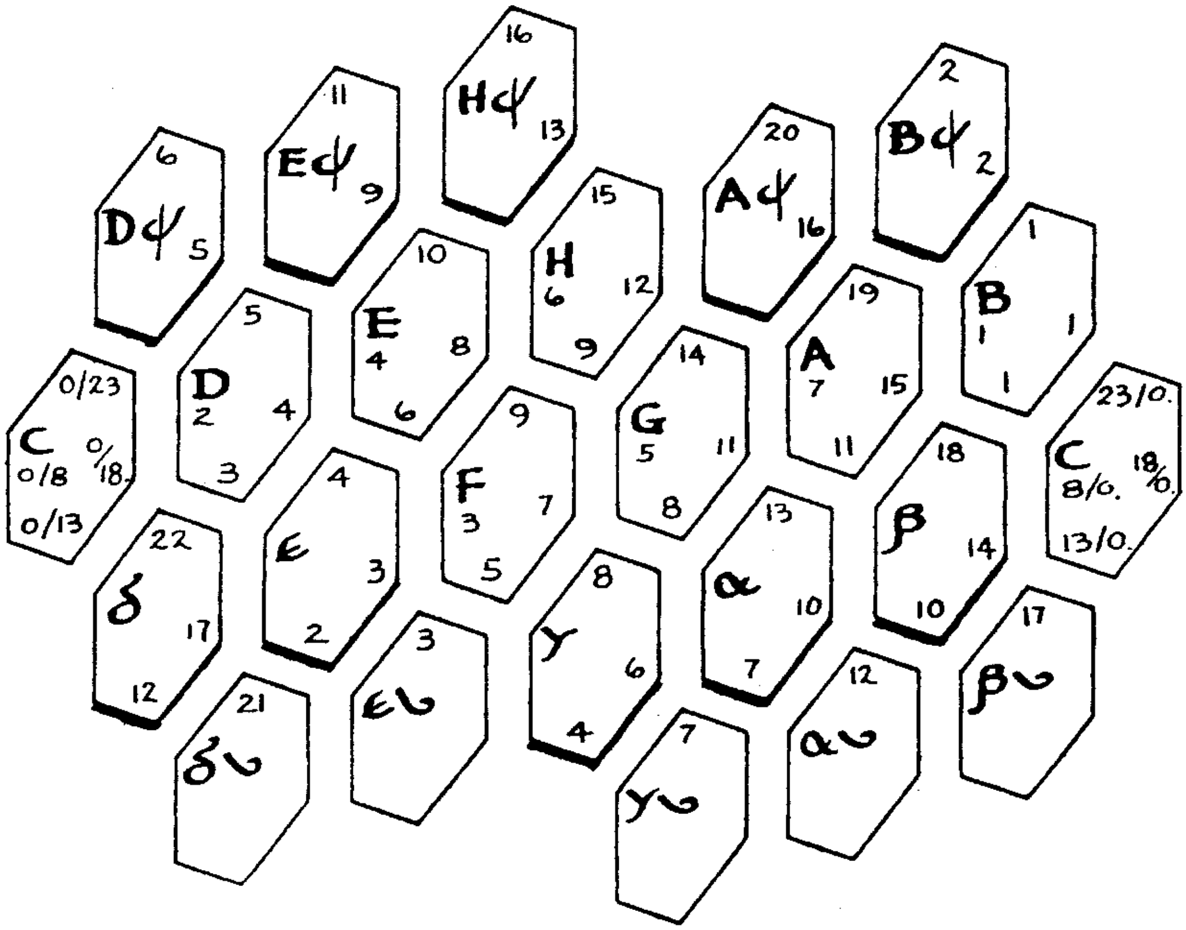
Keyboarding "Septimally Positive" Systems



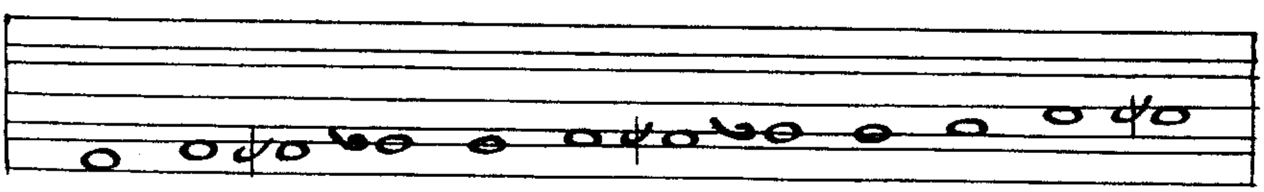
and notation:



Keyboarding "Quintally Positive" Systems

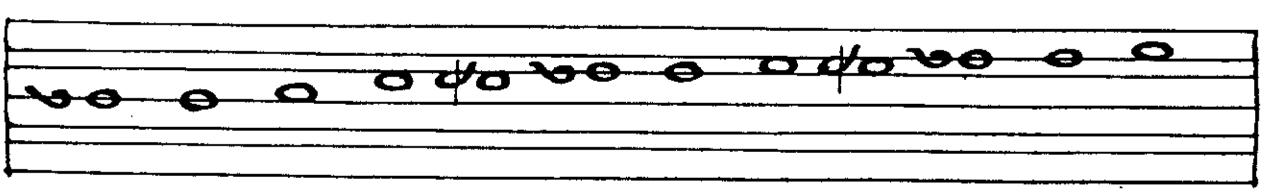


and notation



0/23 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

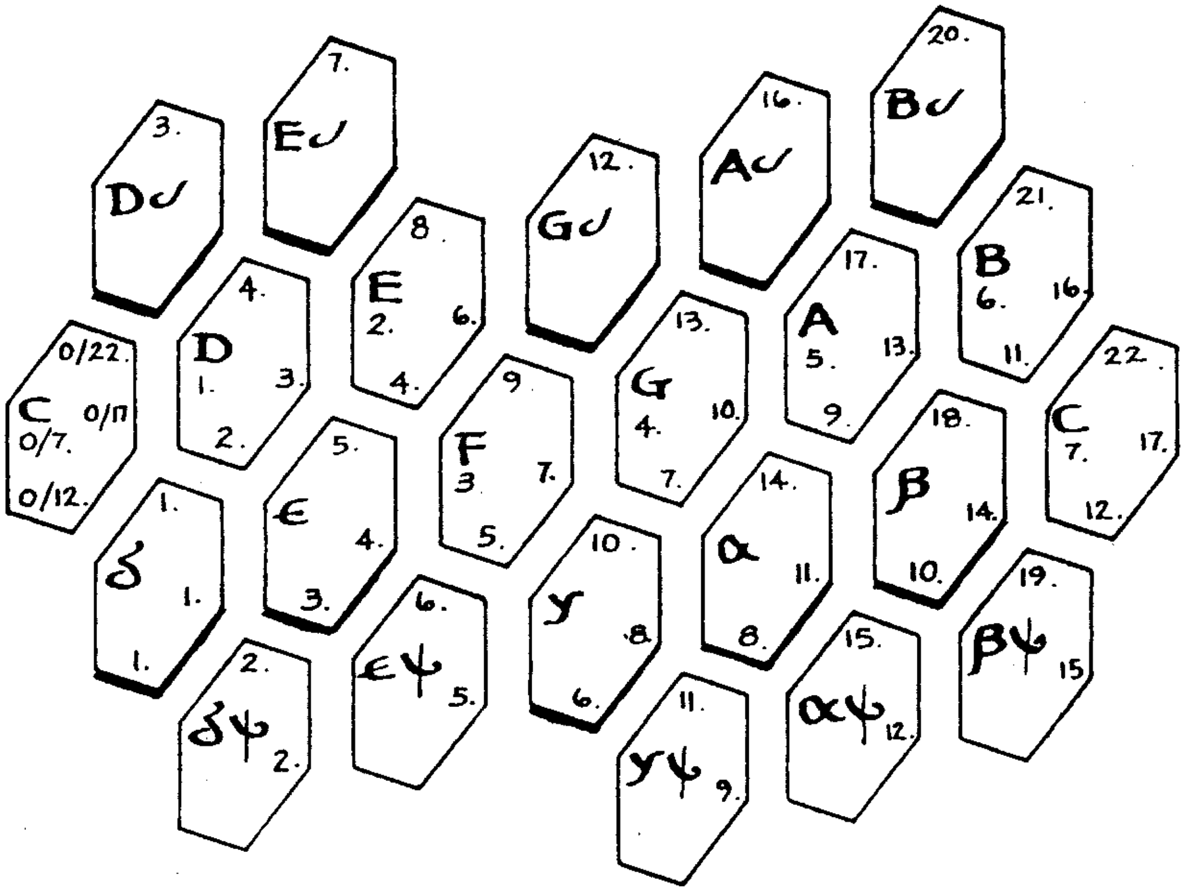
C B ε D γ F E



12. 13 14 15. 16. 17. 18. 19. 20. 21. 22. 23/0.

α G H β A δ C

Keyboarding "Quintally Negative" Systems



and notation