PIANO FACTORY and PIANO SERVICING

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Some Comments on NEW INSTRUMENTS INTRODUCED RECENTLY

AT the recent trade convention in Chicago, two among the items on display attracted most of the attention of those who came to look at and to appraise pianos. These were the so-called "Spinet grand" of Mathushek and the new upright of Charles Frederick Stein. The most interesting point about them both was undoubtedly the fact that each represents a type supposedly obsolete. The Mathushek piano is nothing more nor less than a modernized hammer-spinet; while the Stein instrument represents the first attempt after a considerable interval to bring forward a thoroughly high class artistic piano in vertical form. Uprights during the last ten years have been steadily declining in numbers and in public favor. One and all the new uprights which have appeared during this period have been either reduced in compass or at least cut down to the minimum in size and, usually, in price also. The emergence of a new upright, to be retailed at a good price and strictly upon its tonal merits, is therefore quite a portent.

THE "SPINET GRAND"

Even more of an omen is to be found in the bold step taken by the Mathushek Piano Mfg. Co., of New York, in constructing and putting on the market a modern piano in oblong form, beautiful to look at and well adapted to the needs of the modern living room, especially where decorations and the furnishings have been conceived in that thoroughly artistic and delightful style known as Early American.

Each of these events demands, then, more than passing consideration, for each moves in the direction of a possible new trade policy.

Readers of this department of THE REVIEW generally are well aware that I have more than once directed their attention to the question of the development of an entirely new type of pianoforte, to be specially and specifically created for the purpose of producing an instrument tonally and architecturally calculated to satisfy the aesthetic tastes of the present day. I have in fact envisaged and attempted to describe something in the shape of the triangular spinet, well known during the seventeenth century, many specimens of which are to be found in museums. Some particularly pleasing examples are in the Crosby-Brown collection of musical instruments at the Metropolitan Museum of Art in New York. I confess that the idea of modernizing the rectangular spinet from which came the nineteenth century square pianoforte had occurred to me, as no doubt it had to many others; but I also confess that I had not expected any manufacturer actually to make the trial. Now that Mathushek has done it, the whole thing becomes both interesting, and of immediate practical importance, so that it is well worth our while to consider with some care the engineering problems involved in the successful model of the kind, taking these in both their tonal and their mechanical aspect.

THE HAMMER GAP

It ought to be said at the start that the shape of the oblong pianoforte fits it extremely well for modern rooms decorated according to eighteenth century English or American styles. It also is extremely convenient for a small apartment because of its fitting neatly against a wall instead of occupying needed space in the middle of the floor. Moreover, its architecture can be conceived on a scale and after a design both chaste and elegant. There are many reasons of the kind, and those who saw the Mathushek Spinet Grand will understand just how it is possible to take the oblong shape and make it into something quite beautiful and charming.

The principal engineering problem connected with the oblong pianoforte is that of taking up the strains of the strings evenly in face of the fact that the gap necessarily left for the rise of the hammers extends along the line of greatest length. In the case of the grand pianoforte this does not matter, because the main structure is behind this gap, while of course in the upright the question does not arise at all. In the oblong pianoforte however it does emerge as a very serious problem. In the old days of the square pianoforte it was never, in fact, satisfactorily solved, save by making the whole construction enormously heavy and cumbersome. No such solution is possible today, and the answer must therefore be found in more refined engineering.

A great deal can be done indeed by judicious barring. I think that a steel casting for this oblong shape would be ideal and in that case the barring need be neither weighty nor unsightly. But there can be no doubt that the oblong plate needs more and more carefully placed barring than does either the vertical or the wing shaped. And I think that the standing in tune qualities and the tonal values of the oblong scale will always be less than perfectly satisfactory until this question has been taken up and completely settled.

REPETITION

The principal mechanical problem to be

solved in connection with oblong pianofortes is concerned with the action. Owing to the shallow space between keybed and strings, there is no room to instal a double repetition action, so that the touch is less elastic and responsive than one finds in a well-regulated grand piano. The fact that the repetition lever cannot find a place in the action and that in consequence the touch is less delicate, suggests that an attempt might be made to secure more rapid checking of the hammer by means of some auxiliary contrivance, perhaps attached to the jack or to the hammer knuckle. It is an interesting fact that recently a well-known New York piano manufacturer, Gordon G. Campbell, has patented an action for small grand pianos which does away with the repetition lever and at the same time secures a satisfactory touch.

It is still too early to offer any definite opinion on the new Mathushek instrument. I can say however that to me it is intensely interesting and that I am watching its progress with the most careful attention. For a long time I have believed that the time for a new thought in shapes and styles was already ripe; and it will be for me a most intensely interesting task to watch the new instrument and to see how it develops.

STEIN BUILDS VERTICALLY

Charles Frederick Stein is an interesting person. He is making pianos of the highest grade, and in these days of depression and intense competition is selling enough of them to keep going. He has restored, so to speak, the old ideal of hand craftsmanship and each piano that leaves his shop is as near to being hand made as may be possible in these days. Moreover Stein makes good pianos, pianos good to hear, good to look at and good to touch with the fingers upon the keyboard. Hitherto he has made only grands. Now he comes forward with an upright, of the same quality and offered at a parallel price.

This is very interesting, if only because trade opinion has inclined during several years to the belief that the days of the high class upright are completely passed away. Of course it is easy to see what has caused the decline in public demand for high class uprights. The grand piano is more beautiful to look at, and carries with it an air of exclusiveness, so to speak. The upright is not beautiful. Moreover the cheapest pianos have always been uprights. Yet a fine upright is, or at least can and should be, much better tonally than a small cheap grand. There is nothing to prevent the tonal beauties of the finest piano being fully developed in upright form.

Now of course the question is whether, if a vertical piano be made today be small enough not to be clumsy, and at the same time tonally satisfactory, it can be made commercially successful. There are those who believe that the thing cannot be done. Stein is not of their opinion.

UPRIGHT VS. GRAND SCALES

Within the last few days I have been engaged, among other labors, in measuring the tensions of the bass strings of a small upright piano, three feet and six inches in height, which is being made by a well-known eastern manufacturer. I have been much pleased with the excellent lengths and weights which the scale designer was able to get for this little instrument. If he had been making a scale for a grand piano twelve inches longer he almost certainly would not have had results as good. This little piano of which I am speaking has of course a reduced scale, beginning with F 9. If it had been designed for full scale it of course would have been somewhat taller, very likely to the extent of six inches at least. The point however is that a small vertical piano always possesses advantages over a grand piano of corresponding size. Thus, an upright forty-eight inches high ought to possess a scale better balanced, of better design and tonally much more efficient than could possibly be had from a grand piano ten inches longer. The disadvantages of the upright rest on other grounds. Its ugly shape, the clumsiness of its appearance at any height greater than about forty-five inches, its less elastic action, and above all its muffled masked tone, put the upright in a poor light compared with the grand. Yet even the simple expedient of turning the instrument around so that the rear surface of its soundboard shall face towards the center of the room, makes an enormous tonal difference.

BUREAU OF STANDARDS TESTS PIANO ACTIONS

The Bureau of Standards, Department of Commerce, of Washington, D. C., made some very interesting tests on piano actions at their laboratories on July 8-9, 1931.

Three types of grand actions were tested by the department, under the supervision of Dr. Heyl. One was the accepted type of standard design; the second was the Swiss type of action, invented by Arthur Flint in Boston some twenty-five years ago, and a cam type of repeating action, patents for which were recently taken out by Gordon Campbell and Joseph Klepac.

Herewith is a table of the findings of the department: Maximum repetition per minute without dropping beats: Erard principle or standard design, 787 beats per minute; Swiss action, 716 beats per minutes; cam type, 1,602 beats per minute.

An attempt was made to standardize the blows per minute at the speed of which a musician would endeavor to repeat a single note. This was estimated at 425 blows per minute. It is exceedingly difficult to establish this exact figure for direct comparisons and, due to the highly sensitized timing mechanism of the oscillograph, it was not possible to get an identical number of blows. However, the comparison was close enough for ascertaining the facts and measuring the minimum escapement from the bottom of the touch necessary to attain this positive repetition of the blows of the piano hammer.

The results were as follows: Erard principle, 430 blows per minute; minimum clearance, .169 inch. Swiss action, 447 blows per minute; minimium clearance, .184 inch. Cam action, 434 blows per minute; minimum clearance, .123 inch.

A third test was the speed of travel of the hammer under given blows on the key. The oscillograph measured the length of time required for the hammer to travel the last three millimeters to the string and rebound. A weight of 170 grams, dead weight, was placed on the end of the key. The Erard type of action indicated that there was an elapsed time of .008 second, and with the cam action an elapsed time of only .006.