EXPLANATION

OF THE PRINCIPLE OF

BENTON'S SELF SPACING TYPE.

THE common widths of book pages, miscellaneous jobs and newspaper columns are some number of Pica ems, therefore the Pica em is taken as the basis for Self Spacing type. The thinnest space in all fonts is some exact fraction of a Pica, and this fraction of Pica is called the unit of measure. All characters, spaces and quads in the font are made some exact multiple of this unit in width, so that the sizes of all faces will work perfectly together in the regular labor-saving measures. This unit of measure may be one-sixth, one-seventh, one-eighth, one-ninth, one-tenth, etc. of a Pica em, as may be desired, to produce condensed, medium or extended faces. The following table gives the sizes of bodies, units of measure, and lengths of alphabets. In the first column will be found the various sizes of bodies; in the second, the number of units contained in one em Pica; and in the third the measurements of a lower case alphabet in the ems of each particular body:

Body.	Number Units to Pica em.	Length of Alphabet.
5½ Point (Agate)	13	15⅝
5½ Point (Agate)	12	16⅞
6 Point (Nonpareil)	13	14⅓
6 Point (Nonpareil)	12	15½
6 Point (Nonpareil)	11	16⅞
6 Point (Nonpareil)	10	18⅝
7 Point (Minion)	12	13¼
7 Point (Minion)	11	14½
7 Point (Minion)	10	16
8 Point (Brevier)	10	14
8 Point (Brevier)	9	15½
8 Point (Brevier)	8	17½
9 Point (Bourgeois)	10	12⅜
9 Point (Bourgeois)	9	13¾
9 Point (Bourgeois)	8	15½
10 Point (L'g Primer)	9	12⅜
10 Point (L'g Primer)	8	14
11 Point (Small Pica)	8	12⅔
11 Point (Small Pica)	7	14½
12 Point (Pica)	8	11⅝
12 Point (Pica)	7	13¼
12 Point (Pica)	6	15½

In the foregoing table will be noticed a Nonpareil with one-twelfth of Pica as the unit of measure. This is one sixth of the body of Nonpareil, or the six-to-em-space, which preserves in this particular font the old three-to-em space and the old en and em quads. The same is true of the Brevier on one-ninth of Pica, the Bourgeois on one-eighth of Pica and the Pica on one-sixth of Pica.

The Minion on one-twelfth of Pica will have as its unit a seven-to-em-space, or one-seventh of the Minion body, and will set at right angles or work into squares of the body, as will also the Pica on one-seventh of Pica. The Nonpareil on one-tenth of Pica has the old five-to-em space of Nonpareil as its unit, and will work into squares of Nonpareil or Pica.

In a complete font of the old kind of body type there are about 190 widths of bodies. Appended is a table showing the different widths of bodies of Self Spacing Old Style. It will be readily seen that there are but nine widths of bodies all told, and that the four-unit width predominates largely over any other, there being fifty-nine characters of this width. We omit the Italic characters from the table as they all go on the same widths of bodies, and are interchangeable with the Roman:

1 unit	—Space	1
2 units	—Space, f i j l , : ; . - ' ! ı ȷ ′ |..	16
3 units	—Quad, c e r s t z ?)] * † ‡ § ‖ ¶ I J s z – °	22
4 units	—Quad, a b d g h k n o p q u v x y fi fl ff $ £ 1 2 3 4 5 6 7 8 9 0 S Z A B C D E F G L N O P Q R T U V X Y & .. — ⟩ ∫ ⌋ ⌉ ⌊	59
5 units	—æ A B C D E F G L N O P Q R T U V Y H K M	21
6 units	—Quad, m ct w ffi ffl œ H K X & w Æ Œ ſb ſh @ — ... ¼ ½ ¾ ⅛ ⅔ ⅛ ⅜ ⅝ ⅞	28
7 units	—M W	2
8 units	—Æ Œ	2
12 units	—Quad, ——	5
9 sizes.	Roman characters.	233
	Italic characters	77
		233

In Roman fonts, except Old Style, there are but eight widths of bodies, the eight unit width being omitted.

Any compositor can see that no combination of units can be made that will not come

within a certain number of exact units of filling a line. If a line of matter lacks, it must lack one or more exact units.

Self Spacing type sets line for line with the ordinary Roman, where the lengths of the alphabets are the same.

Repeated experiments with the new type have shown that the average compositor gains about twenty-five per cent. in speed, with no trouble in justification whatever. In the matter of the correction of proofs the gain is enormous. Say there is an "a" for an "e"; as "a" is four units wide and "e" three, "e" and a one-unit space justify the line perfectly. Even this measure of trouble is avoided in many instances. As twenty-six of the most common lower case characters are of the same width, they can be substituted for one another without the change of a space.

Another item worthy of consideration is the greater durability of the type. It is always on its feet, and therefore is not worn by "pounding."

In tabular work there is a great gain in speed and neatness. By the addition of a new character, viz: "|", it is easy to set perpendicular lines of any length, line upon line.

Self Spacing type does not require a conscious effort to master its principle—the compositor acquires intuitively and at once all that is necessary for the perfect use of the system. He is relieved of the mental process of spacing and justifying which he now goes through.

This system secures a proper relation between letters, spaces and figures. Under the present lack of system in the old kind of type, the three-em space and the en figure are used, no matter whether the face be expanded or compressed; in Self Spacing type every character and space will be increased or decreased in width relatively with the face of the type.

The italic letters have been made to harmonize with the Roman letters.

It may be repeated that the compositor has nothing to learn in handling the Self Spacing type. There is but a single direction to be given—to set that which looks like the em quad (six-unit quad) with the nick out.

Whoever will study the principle on which the Self Spacing type is based, will readily admit that it is bound to secure easy and perfect justification, greatly increased speed and consequent enormous saving, simplicity and rapidity of proof correction, and increased accuracy and ease in the setting of tables. All these points are beyond question, as certainly as the proposition that two and two make four is not open to argument. No rational person can doubt them.

No. 1	No. 2	No. 3	No. 4.	No. 5	No. 6	No. 7
i|and	I|&H	1|DLE	s|aturday	i|&H	I|and	′|DLE
s|mit	I|NK	S|MW	is|thmusy	s|NK	s|mit	I|MW
b|rot	S|LY	B|AIT	ne|vermet	d|LY	B|rot	S|AIT
si|tly	E|LS	M|OK	Th|ursd'y	si|LS	M|tly	E|OK
m|an	H|IE	W|AD	line|of the	m|IE	W|an	H|AD
su|it;	M|W	SE|ES	nine|units	su|M	SE|at	SI|LS
wi|st	Æ|X	PU|SS	incre|ased	mi|X	PA|st	BI|ts
tw|it	SA|T	HA|M	comp|ress	we|T	HA|D	SU|it
gla|d	FO|Z	FLI|T	Repea|ted	gla|S	FLI|Z	FO|x
mit|e	CH|I	SEA|S	second|on	mit|I	SEA|I	CH|e
will|i	$34|!	NOT|I	say the|re	this|!	NOT|i	234|i

To further explain and illustrate the ease with which table work is done with Self Spacing type, we show above an example of miscellaneous justifications, which is absolutely impossible to accomplish with the old kind of type. In column No. 1 the first line begins with the lower case "i", two units wide, which is followed by the upright dash "|", two units, and the characters "a", four units, "n", four units, "d", four units, comprising sixteen units to accurately fill the column. The second line begins with "s", three units wide, which throws the space rule one unit further to the right than in the preceeding line. In each succeeding line lower case characters are employed to the total width of sixteen units, and such characters are chosen for the first part thereof as will admit of advancing the space rule to the right exactly one unit in each succeeding line.

In column No. 2 the same plan is followed, the only change being the substitution of capital for lower case letters. No. 3 is also a repetition of the example with small cap characters.

The central column, No. 4, is thirty-one units wide, contains upper and lower case characters, and the space rule is carried to the right two units in each succeeding line.

In columns Nos. 5, 6, and 7, caps, small caps, lower case characters and figures are used promiscuously, all columns coming perfectly justified in lines perpendicularly at a width of sixteen units in each.

This piece of composition was done in a full measure stick, and set line upon line in the ordinary manner of straight reading matter.