Applying ideas to small squares is more fun than trying to construct large ones. In this article I have collected and commented on a number of such ideas, limiting myself to squares of the fifth order. I hope readers may find my results both interesting and stimulating. All ideas used can of course be applied equally well to squares of other orders.

First then, why not personal word-squares, based on names—your own or those of people you know? Examples:

<table>
<thead>
<tr>
<th>BRIAN</th>
<th>SARAH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RONDO</td>
<td>ARENA</td>
</tr>
<tr>
<td>INGOT</td>
<td>REMIT</td>
</tr>
<tr>
<td>ADORE</td>
<td>ANILE</td>
</tr>
<tr>
<td>NOTES</td>
<td>HATES</td>
</tr>
</tbody>
</table>

Even five-letter names can be difficult, e.g. names like SALLY, BILLY, TOMMY, which make you search for a suitable second word, but they can usually be done somehow.

<table>
<thead>
<tr>
<th>SALLY</th>
<th>BILLY</th>
<th>TOMMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADIEU</td>
<td>IDOLA</td>
<td>OXEYE</td>
</tr>
<tr>
<td>LILAC</td>
<td>LOGAN</td>
<td>METAL</td>
</tr>
<tr>
<td>LEACH</td>
<td>LLAMA</td>
<td>MYALL</td>
</tr>
<tr>
<td>YUCHI</td>
<td>YANAN</td>
<td>YELLS</td>
</tr>
</tbody>
</table>

But it is preferable to stick to fairly common words whenever possible and even to make the rest of the square suggestive of the person in some way, as in the SARAH square above, where she is told to REMIT her ANILE HATES. And don’t overlook the surname.
Names that are too long conveniently to form squares of their own can be linked with others to make a continuous name running round the edges of several squares. Thus, we might use ROSEMARY PATTERTON or CATHERINE SUE JONES as follows:

```
ROSE MARY PAT T E
CAT HE R E NE Y S U E J
E R I N E
A M O U R
T O W N S
T U N G O
E R S O N
```

Not infrequently it is possible to fit two 5-letter names into a single square. Here are some examples:

```
MUSER AJAVA CASHS A DLAY KAFKA
UNCLE JULES ARTIE DOONE AARON
SCRIM ALERT STOPS LORNA FRANZ
ELIHU VERNE KIPPS ANNET KONIA
RE M US ASTER SESSA YEATS ANZAC
```

Alternatively, we may couple the names of two separate people, JAMES and SALLY, GRACE and ROBIN, hint at the eternal triangle by sandwiching one between two others of opposite sex as in the ADELE-DENIS-ALICE example below, or even, if we are clever, perhaps succeed in forming a square out of Christian names alone. I have managed to do this only by using the somewhat dubious IRENA, but possibly readers may triumph with five common names. By the way, nice work for ROGER there among his four charmers!

```
JAMES ALOMA M ORAL EMAIL SALLY
GRACE ROBIN AB ORT CIRCE ENTER
RADAR ADELE DE NIS ALICE RE SET
DORIS ONORA ROGER IRENA SARAH
```

Sometimes two names can be linked either way round, as in

```
WORD WAYS
```
which, with a little modification, can be linked even more intimately in a manner reminiscent of the familiar twin hearts often chalked on walls:

```
ALLAN
L A I N E
L I N E S T A
A N E N T A L
N E S T A L L
T A L P A
A L L A N
```

Trying to form squares containing repeated names is teasing. This sort of thing:

```
K A A M A
A L L A N
A L L A N
M A A L A
A N N A L
```

```
W A L L S
A PA O O T
L O T T A
S T A A B
```

```
L A B B A
A D E E N
B E L L E
A M E E D
```

The above ideas can of course be applied to words in general, and need not be restricted to names. Nine-letter words can sometimes be found that will split up into two five-letter words (overlapping), as in the following example:

```
C R O S S
R E - V O W
O V O L O
S O L A R
S W O R D
```

or word-pairs like CRUMB-BRUSH or MOTOR-RALLY can be hunted out and used:

```
C R U M B
R A R E R
U R U B U
M E B O S
B R U S H
```

```
M O T O R
O N O R A
T O R I L
O R I E L
R A L L Y
```

Or perhaps we might try collecting a complete alphabet of all-rounders on the pattern:
A word, by its meaning, may often suggest an idea suited to it. Thus the words RISES and FALLS suggest sets of "all-positioners" like:

<table>
<thead>
<tr>
<th>RISES</th>
<th>FALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAN</td>
<td>SCA</td>
</tr>
<tr>
<td>ALIBI</td>
<td>CURIO</td>
</tr>
<tr>
<td>NIMES</td>
<td>RISES</td>
</tr>
<tr>
<td>OBSE</td>
<td>RISES</td>
</tr>
<tr>
<td>XEROX</td>
<td></td>
</tr>
</tbody>
</table>

From the foregoing rise and fall of the same word it is but a step to the idea of progressive squares and the closely allied overlapping squares. In progressive squares the same word is shifted along one place for each degree of rise or fall, a new letter being added each time to replace the one elided. Examples:

<table>
<thead>
<tr>
<th>PROGRESSIVE SQUares</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGAMI</td>
</tr>
<tr>
<td>GAMIN</td>
</tr>
<tr>
<td>AMINE</td>
</tr>
<tr>
<td>MINER</td>
</tr>
<tr>
<td>INERT</td>
</tr>
</tbody>
</table>

Overlapping squares may overlap in various ways. My first example shows their connection with progressive squares.

<table>
<thead>
<tr>
<th>PROGRESSIVE SQUares</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOSCAR</td>
</tr>
<tr>
<td>OSCARE</td>
</tr>
<tr>
<td>SCARET</td>
</tr>
<tr>
<td>CARETE</td>
</tr>
<tr>
<td>ARETEM</td>
</tr>
<tr>
<td>STEMS</td>
</tr>
</tbody>
</table>

Perhaps the most interesting link between overlapping and progressive squares is that, if we can find a progressive closed chain of words of the right length (the chain being of any length), it becomes possible to cover a plane with letters in such a way that if we put down our 5x5 'box' anywhere, a word-square will result.

WORD WAYS
In the above, OPEST is the second person singular of the verb to ope, PESTO is an Italian town.

Let’s go off on another tack. Number the letters as usual, A=i, etc., and consider what can be done with this extra element. The first and most obvious idea is to search for low-total and high-total squares. Here are my own best pair to date:

\[
\begin{array}{ccccccc}
B & E & D & A & D & U & R & U & C & U \\
A & D & A & D & A & L & U & X & U & S \\
C & A & D & E & D & U & C & U & T & S \\
\end{array}
\]

Low total 63 High total 467

Can any reader improve on these?

Another idea is that of Balanced Squares, i.e. squares that would balance on a central pivot if the letters were replaced by their corresponding weights. Since every word-square has one axis of symmetry already, the main diagonal, all that is necessary to ensure true centre-point balance is that it should be made to balance on some additional knife-edge through the centre, e.g. the central upright. It may prove possible to construct such CB squares solely out of CBB words, but this is not necessary. Thus, in the square below

\[
\begin{array}{ccccccc}
N & O & N & E & T & 2 & \text{(2)} \\
O & L & I & V & E & 4 & \text{(4)} \\
N & I & C & E & R & 4 & \text{(4)} \\
E & V & E & N & S & 20 & \text{(20)} \\
T & E & R & S & E & 16 & \text{(16)} \\
\end{array}
\]

the five words have R or L moments of 2R, 10L, 4R, 20R and 16L respectively, whose resultant turning effect is zero, showing that the square is a centrally balanced one. Others are
226 PLAYING ABOUT WITH WORD SQUARES

R AT C H  L OC U S  B AL A S  B OR E D
A D O R E  O V A T E  A Z U R E  O R A L E
T OW E R  C AT E R  L U M E N  R A Z O R
C R E E D  U T E R I  A R E N A  E L O P E
H E R D S  S E R I N  S E N A L  D E R E K

Such CB squares are not difficult to find. Much more taxing is the problem of finding Semi-magic word-squares, whose rows and columns have the same total. One would think this fairly easy at first sight, since only the rows need be made to comply; the columns, being the same, will automatically follow suit. But just you try it! My three successes so far, none of them really good, are:

<table>
<thead>
<tr>
<th>MET E L</th>
<th>C A R E T</th>
<th>F I C O S</th>
</tr>
</thead>
<tbody>
<tr>
<td>E X I L E</td>
<td>A V E R A</td>
<td>I D O S E</td>
</tr>
<tr>
<td>T I M I D</td>
<td>R E - G O B</td>
<td>C O K E R</td>
</tr>
<tr>
<td>E L I H U</td>
<td>E R O D E</td>
<td>O S E L A</td>
</tr>
<tr>
<td>L E D U M</td>
<td>T A B E S</td>
<td>S E R A I</td>
</tr>
</tbody>
</table>

Magic total 55  Magic total 47  Magic total 52

Let us leave these arithmetical headaches and revert to pure letterplay. Squares having high vowel content or low vowel content are another idea. The former suggest the examples

<table>
<thead>
<tr>
<th>A E A E A</th>
<th>A I A I A</th>
</tr>
</thead>
<tbody>
<tr>
<td>E E R I E</td>
<td>I R I I R</td>
</tr>
<tr>
<td>A R A R A</td>
<td>A I A I A</td>
</tr>
<tr>
<td>E I R I E</td>
<td>I R I I R</td>
</tr>
<tr>
<td>A E A E A</td>
<td>A I A I A</td>
</tr>
</tbody>
</table>

d consonants  d consonants

It does not look easy to improve on these. Squares having a low vowel content are more troublesome however, because more various, and the best I can do quickly is the following, which has seven vowels. Surely readers can beat this without much difficulty?

<table>
<thead>
<tr>
<th>G L O S S</th>
<th>L I G H T</th>
</tr>
</thead>
<tbody>
<tr>
<td>O G L E R</td>
<td>S H E V A</td>
</tr>
<tr>
<td>S T R A P</td>
<td></td>
</tr>
</tbody>
</table>

7 vowels

Squares containing a repeated letter forming some simple geometrical pattern present another challenge. How close can we get to a complete alphabet for each particular pattern? Readers of earlier issues of WORD WAYS will remember my “Many Happy Hot Cross Buns to Leigh Hilary Mercer,” which used the Greek

WORD WAYS
cross pattern. But the St. Andrew's cross and the hollow square patterns are equally feasible, e.g.

<table>
<thead>
<tr>
<th>ROAST</th>
<th>ABUNA</th>
<th>AAAAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVATE</td>
<td>BARAD</td>
<td>ALCOA</td>
</tr>
<tr>
<td>AAAAAA</td>
<td>URATE</td>
<td>ACERA</td>
</tr>
<tr>
<td>STAIR</td>
<td>NATA</td>
<td>AORTA</td>
</tr>
<tr>
<td>TEARS</td>
<td>ADELA</td>
<td>AAAAA</td>
</tr>
</tbody>
</table>

It must be considered a fault if the patterned letter appears elsewhere than in its pattern.

We must not forget palindromic word-squares. These are of several different types. First, those composed entirely of PDs, e.g.:

<table>
<thead>
<tr>
<th>SALAS</th>
<th>YARAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANANA</td>
<td>AJAJA</td>
</tr>
<tr>
<td>LAVAL</td>
<td>RADAR</td>
</tr>
<tr>
<td>ANANA</td>
<td>AJAJA</td>
</tr>
<tr>
<td>SALAS</td>
<td>YARAY</td>
</tr>
</tbody>
</table>

Secondly, those squares composed of five five-letter words, the whole being palindromic when read from end to end, although only the central word is usually itself a true PD. Examples:

<table>
<thead>
<tr>
<th>SURAL</th>
<th>DAMON</th>
<th>SERAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULEMA</td>
<td>ANIMO</td>
<td>ESORA</td>
</tr>
<tr>
<td>REFER</td>
<td>MINIM</td>
<td>ROTOR</td>
</tr>
<tr>
<td>AMELU</td>
<td>OMINA</td>
<td>AROSE</td>
</tr>
<tr>
<td>DARUS</td>
<td>NOMAD</td>
<td>CARES</td>
</tr>
</tbody>
</table>

Neither of these first two types of PD square makes sense as a whole, whereas the old SATOR square had at least some kind of contorted meaning. Can we do better in this respect? I think so, but we shall almost certainly have to use unfamiliar words. How about

<table>
<thead>
<tr>
<th>ASSAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEEKA</td>
</tr>
<tr>
<td>SRES</td>
</tr>
<tr>
<td>AKEES</td>
</tr>
<tr>
<td>MASSA</td>
</tr>
</tbody>
</table>

in which Seeka is an invented name (cf. AREPO) and akees are a form of tropical tree. Or we might have
Rot 0 R Strap "Tuoba" rotor about parts,

about parts,

where "Tuoba" is an invented trade-name for some make of rotor. Here are a few more, with somewhat necessary explanations!

Amasa mures arara serum. (Asama). (The Biblical personage walls up the macaw serum on the Japanese volcano)

Rena's Elisa nikin. Asile saner. (Rena's Elisa is a soft creature, she'd be better in a nuthouse)

Serac enema. Refer "Amene Cares". (An enema using either a pinnacle of ice or a hard Swiss cheese can be uncomfortable. Look it up under "Agreeable Cares" in your Nursing Handbook)

The above, all of which use five five-letter words and make some kind of sense, constitute our third type. However, hunting out and using rare words is not to everybody's taste, and fortunately there is an alternative which allows plenty of scope for ingenuity without transgressing the bounds of everyday language. This is to treat the square as a whole and not restrict our words to five-letter ones. This makes the construction of such PD squares fun. E.g.:

Revel ever, Evel O Eve, revel ever!

So might one counsel a befuddled young lady who, having been charged into a dry ditch and considerably rumpled by nine boisterous schoolboys, stumbles to her feet again in some bewilderment.

Set on, Eve notes. Eton, Eve notes.

Ten on Eve, none men? On Eve—none!

Of course, it is not only schoolboys. Listen to this, the wild story, in a nut-shell, of the nomadic nut-case:

I roam, ram Naomi, moan, mar Maori.

That was in New Zealand, not in the USA, in some parts of which there seems to be a shortage of both food and women, as the expatriate Omar Khayyám grumbles:

WORD WAYS
He should have taken his Thou along with him and remembered to put that loaf of bread and flask of wine in his rucksack. What happened to the nine school-boys who so mishandled poor Eve, you ask? As their swish-happy, but always polite Headmaster said to each in turn:

Nates. Abase—ta! Rates a base tan!

Let's return to virtue, shall we, to the goody-goody stay-at-home simple sisters of eloping Sue:

Sue's run, we sew—O we sew! Nurse us.

Tut-tut, hard work is the cure for sex. Go out and

Draw dray—sways, yaws—yardward,
or pop over to France and mend that dilapidated old railroad coupling that is keeping the train in the station:

Snap-tie (Gare)—her age—it pars!

An auto is more up-to-date, you will agree. Perhaps a

Racer—a rate car, ace T., a rare car!

Some prefer a horse or an elephant, of course. There was even a chap once who

Named a male ma-camel—a made man!

There are not all that many male ma-camels about! Do you ever use sun-tan lotion? Some people consider it cheating. As the pale-skinned weakling admitted to his genuinely bronzed and barrel-chested friend, when discovered smearing himself with what appeared to be brown shoe-polish:

Titan, I sin. A tin—I tan. I sin at it!

Material for a comic drawing there! Do you remember the cartoonist Bateman? Is it true that he once went to a fancy-dress ball as a Greek letter and was annoyed because nobody knew what he was supposed to be? As they said at the time:

Bateman, as Eta, hates a name-tab.

Well, so much for our fourth and final type of PD squares. Now for something different: Diagonal squares. It is possible to construct squares in which the diagonals also are words. It is not easy, however. There are two cases, according as the principal diagonal is or is not the same as the top line and first column. The transverse diagonal will always need to be a palindrome, a tiresome restriction. Here is a single example of the first type and two examples of the second type:

B E A T A  G R I S T  P L A S M
E E L E D  R E N E E  L A B I A
A L A N A  I N N E R  A B N E R
T E N T S  S E E R S  S I E G E
A D A S A  T E R S E  M A R E S

And so to our last type of square, the so-called Sentence Squares (usually a good deal of an overstatement!). Five 5-letter words sufficiently linked in meaning to make sense when read in order, but without our former palindromic restriction. Easy and fun to construct, even in one's head when doing other things, but hard to
hit on really satisfactory ones. Counting my efforts for the first time, I find I have scribbled down 101 in the past week or two without much difficulty. All make some kind of sense, although the true sentence is rare; telegraphese predominates. Here, anyway, are a selection:

Amuse Minna, un-jar snail early.
Bless "Lotto," Ethel—steal Solly!
Bliss lover, evade sedge, trees . . .
Canned Anona noted Eneid, daddy.
Catch Adela, tenor, close hareem.
Clean Linda end-on, adorn Nanny.
David, Aline—Vicar insane! Derek.
Ellen, Laura lures erect. Nasty!
False Anita likes Steve eased.
First, Ilona, Robin snips tansy.
Genes exult, Nurse Elsie Steel.
Giured—Lynne under 'Enery, Derek!
Gorge oster? River geese erred.
Harem alive, rival—evade melee!
Harsh Adele, rebel—sleep helps.
Harsh Anita riled Steve? Hades!
Inter Naomi—toxin Emir's—rinse.
Later, Adele tells Ellie, re-sew.
Loved Olive, Vicar? Evade Derek!
Manic Anona notes inert casts.
Meals—erie aroma—limit seats.
Never exile vices—elect rests.
Olive loves Ivor's verse cesses.
Puant ulcer acute, Netta—treat!
Quest under Eddie—seize trees!
Robot Olive bites ovens, Tessa!
Rouge-owner under geese erred!
Scalp Celia, allot lions Patsy.
Satn aside tires adept Nesta.
Sober Olive bites! Event rests.
Strip-tease? Rawst issue, Peter.
Timid Isole: "Movie? liad? Deedso?"
Towel, Onora, woman! Erase lanes.
Valet above loves Eden's Tessa.
Venus-event—"nesty until—" style!
Watch Adela, Texan—Claud handy!
Woman osme moves anent nests.

Let's leave it at that, shall we?