About two years ago when I was nine years old and my brother Mark was eleven, we teamed up to enter a series of three contests for kids under twelve sponsored by my Girl Scout magazine, Daisy:

- Arrange six different three-letter words in a 3-by-3 word square using letters as close to the end of the alphabet as possible. Using the values A = 1, B = 2, ..., Z = 26, score the word square by adding the values of all nine letters. What is the highest possible score?
- What are the ten longest words that can be found in a Boggle grid (a 4-by-4 grid of sixteen letters where words can be spelled out using the king's move in chess)?
- Can a 5-by-5 word square contain four 4-by-4 word squares and nine 3-by-3 word squares?

Mark and I went through Webster's Third New International Dictionary (the contest dictionary) to find the best words and the highest-scoring grids, and we won all three contests! We think we found the best entries; can you do better?

The first contest (the one using the 3-by-3 word square) was the first one we'd ever entered and our first time using Webster's Third. We borrowed the dictionary from our school's library. We asked our 18-year-old friend Kyle Corbin, who had entered word contests in Games magazine, for advice on getting started. We often went back to him for advice during the contests. He said that we should take as many short-cuts as possible to avoid too much dictionary work. First, he said, we should look through the ends of all the alphabetic sections of the dictionary to make a list of all the high-scoring three-letter words. This way we could figure out what the highest theoretical score was without searching through the whole dictionary. We added up the scores of the three best words, SWY (67), WYS (67), and WRY (66), and that was the highest theoretical score, 200 points. We worked with the words we had found so far and soon had entries in the 170s. Then we came up with the square at the right for a score of 183. To get to 200! It was time to get back to the dictionary to make our complete list of three-letter words. We had to decide what the lowest score on the list could be. We had already scored 183, and we knew the best words were 67 points, so we figured out that the lowest-scoring word we could use would be 49 points (because the best score with a word worth less than 49 would be $48 + 67 + 67 = 182$). Then we went through the dictio-
ary looking for all the three-letter words scoring 49 or higher. Also, we looked for two-letter words that we could add an S to, like the word WY that we could make into WYS (we almost missed it!). But we didn’t have to search through the entire dictionary because most of the pages couldn’t possibly have three-letter words worth at least 49 points. For example, the first page in the A section that we had to search was the one that would have AVZ (if it were a word). Any words before AVZ could only score 48 ($1(A) + 22(V) + 25(Y)$). It took us many days to search the parts that might have 49-point words even though it wasn’t the whole dictionary. There were less than 200 words on our list when we finished. We made the list even smaller by getting rid of the 49-, 50-, and 51-point words. We knew that words this low had to be put together with words scoring very high to get a grid scoring 183 or more. So we tried all the ways of putting together two words worth 65-67 each with one word worth 49-51 to make an entry. Since only one of the ways we tried totalled more than 183, we crossed off all the 49- to 51-point words except the one used in the entry that beat 183. For example, the only way for a 49-point word to be used in a grid scoring at least 183 is to use two 67-point words (SWY and WYS) with it. We tried all the ways of using SWY and WYS in the WYS same direction; the only possible way is given at right. As OOT (50 points) was the only word we could use with SWY and WYS, we crossed off the 49-point words. Since it also gave us a 184-point entry, we crossed off the rest of the 50-point words, too. And we crossed off the 51-point words using the same kind of method. The reason that we didn’t cross off any words higher than 51 with this method was that there were too many combinations of 60-67-point words that we would have had to try. So we started with a list of about 150 words worth from 52 to 67 points, of which eighteen were above 60: OXY, PUY, PYX, STY, SWY, SYS, TRY, TUT, TUX, TVS, UTU, VOX, WOW, WRY, WYS, YOU, YOW, and YUP.

We used a special method to find the highest-scoring grid from our list of words. We tried each of the words on the list as the middle word in the grid and found the highest score possible with that word there. Usually, after a little work, it was clear that the score couldn’t top 184 or that no words would fill in the rest of the grid. Here is an example of our method, trying IVY as the middle word. The T middle vertical word had to have V as its second letter. The IVY only one besides IVY was TVS, as shown at the right. The S bottom word going across then had to have S as the second letter. The only one was OSS, as shown at the left. The left-hand vertical word then had to end in IO, and there weren’t any words like that on our list. So, we knew that IVY couldn’t be used as a middle word, and we went on to the next one on the list.

We spend weeks trying middle words. WOW finally turned TVS out to be the best one, as shown at the right. It scored a total of 186 points.

We weren’t sure about all the words we put on our list. The rules said that no proper nouns, abbreviations, or foreign words were allowed. But we weren’t sure how the judges would rule on some of the words.
For example, OOT, OYS, and SWY had regional labels of "Scot" or "Austral". They apparently considered words like these foreign, even though the dictionary said they were part of the whole English language area. We even asked the editors of the dictionary, and they told us none of the words in the dictionary were foreign. The other kinds of words we used that they apparently didn't allow were words in two-word terms (like VOX in VOX POPULI), and words listed as "abbr or n" (like TVS). We were surprised that they allowed us to add S to words that weren't nouns (like YOS, "plural" of the interjection YO). Since almost all our high-scoring grids had some of these questionable words, we sent in several entries (10 of the 8200 entries received were ours). It turned out that some of our entries did get disqualified; our winning entry was only 181 points.

Just for fun we reversed the contest to see how low a score we could get. Our best, probably wouldn't have been allowed because they used words with special labels.

WORDS

Paul Dickson's new book, Words (Delacorte Press, 1982; $13.95), is very similar to Mrs. Byrne's Dictionary (University Books, 1974); both are idiosyncratic collections of odd words that have tickled the author's fancy. The earlier work arranged all words in a single alphabetical list; in contrast, Dickson has arranged his words in more-or-less logical groups such as curses (a collection of new ones to replace the overworked well-known ones), monsters, show biz words, words about words, and the like. To show how many definitions a common word can have, he devotes one chapter to punk (43 definitions, plus 79 words or phrases beginning or ending with punk).

This book is a lot of fun to browse through; however, it shows signs of careless preparation or proofreading:

- two monsters are misspelled: GUYASCUTUS should be GYASCUTUS, and CLICHEVACHE is CHICHEVACHE (p. 172, 175)
- SESQUIPEDALIAN is not six feet long, but only one and a half (p. 166)
- although it is true that most words containing double-Y are foreign borrowings (GAYYID, SAYYOU), Webster's Second lists the impeccably Anglo-Saxon SNARLEYYOW (p. 195)
- SEMORDNILAP was not coined by Espy; it has been around at least since 1961 (see Martin Gardner's Notes in Bombaugh's Oddities and Curiosities in the Dover reprint) (p. 185)