LOOK BACK!

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Anagram dictionaries come in two versions, a reduced one consisting only of words containing anagrams (SLEUTH and HUSTLE), and a full one consisting of the conversion of each word in a list to its alphabetic ordering (ESCORT to CEORST), followed by the alphabetic ordering of the converted words. An early example of a reduced anagram dictionary is A.R. Ball's *The Nuttall Dictionary of Anagrams* (Frederick Warne, 1937); of a full anagram dictionary, Charles Haertzen's *Vest-Pocket Anagram Dictionary* (Follett, 1964). Both are quite small, the latter based only on 20,000 words from **aaabbkl** cabbala to **su** us (no tutu or tux).

Strictly speaking, these should be called transposal (or transposition) dictionaries; anagram is used by the National Puzzlers' League to mean a word or phrase that can be rearranged to an apposite word or phrase (DOMITORY to DIRTY ROOM), but most of the world does not recognize this restriction.

It was early recognized that the digital computer could dramatically reduce the labor of compiling an anagram dictionary. In the November 1965 Mathematical Games column by Martin Gardner in Scientific American, Nicholas Temperley, apparently unaware of Haertzen's work, called for the creation of an anagram dictionary. Dmitri Borgmann and Darryl Francis began to compile by hand in the 1970s and early 1980s a reduced anagram dictionary much larger than the one by Ball, but it was never carried to completion.

In the fall of 1972 I acquired a copy of a computer tape containing words and phrases from Webster's Second Unabridged, a tape formerly used by the Air Force to compile a reverse dictionary, and proposed to Tom Kurtz, the director of the Kiewit Computer Center of Dartmouth College, that he create a full anagram dictionary. He experimented with methods to do it in early 1973, but it turned out to be a major undertaking and was not of high priority; the task was not completed until 1976. The finished product, seven side inches of computer printout on the 11-by-15-inch paper of that era, consisted of 311,818 alphabetically converted "words" of which 287,618 were different. 24,200 words appeared in anagram sets of size two through eleven, the most fecund set being AGNOR angor argon goran grano groan nagor orang organ rogan Orang Ronga (capitalized and uncapitalized words counted separately). Unfortunately, the Air Force list did not include plurals, past tenses and gerunds; otherwise ASPER would have generated eleven anagrams instead of six! The longest well-mixed anagram pair was BASIPARACHROMATIN and MARSIPOBRANCHIATA which had earlier been discovered by Charles Holding by hand.

At least two good-sized full anagram dictionaries have been published in recent years. In 1985, R.J. Edwards authored the *Longman Anagram Dictionary* containing "over 100,000 anagrams from 3 to 15 letters" arranged by length, to which were added some 70,000 non-dictionary phrases such as WANGLE IT, DROP A BRICK, BILL AND COO, OUTER COATING and GUT REACTIONS. This was followed in 2005 by the anonymous *Collins Interned-linked Dictionary of Anagrams* containing "over 100,000 anagrams" of 4-letter to 15-leter words arranged by length.

To compare these dictionaries with the 1976 computer printout, I have randomly selected 20 or so consecutive converted words of eight, ten and twelve letters. Words in all three dictionaries are untagged; those in the computer list, in Longman and in Collins are respectively tagged *, # and @.

aegilnop	epigonal*
aegilnor	gerainol*@ regional
aegilnos	gasoline
aegilnot	gelation legation lagonite*
aegilnpr	pearling
aegilnps	pleasing elapsing@#
aegilnpt	pleating@#
aegilnqu	equaling
aegilnrr	rearling*
aegilnrs	resignal* seringal* signaler@ seal ring* engrails@# realigns@# nargiles@ Salinger@
aegilnrt	integral triangle alerting@# teraglin*@ altering@# relating@#
ageilnrv	raveling*@
aegilnrx	relaxing@#
aegilnry	yearling layering@# relaying@#
aegilnss	gainless* glassine
aegilnst	genitals gelatins@ stealing@
aegilnsv	leavings#@ sleaving@ Svengali@
aegilntt	teatling*
abcdhioopr	brachiopod
abcdhkrrtu	Burckhardt#
abcdhloort	broadcloth board cloth* cloth board*
abcdhlorsu	subchordal*
abcdhnoopr	podobranch*
abcdhnoort	notch board*
abcdhnopru	punchboard*@
abcdhnorty	brachydont*
abcdiiisty	dibasicity*@
abcdiillsy	disyllabic*@
abcdiilnnu	Indian club#
abcdiilnty	indictably*@
abcdiilnvy	vindicably*
abcdiimnoy	biodynamic*@
abcdiiortt	bactritoid*
abcdiilnvy	vindicably*
abcdiirsty	scabridity*@
abcdiistuv	subacidity*@
abcdikloow	black widow#
abcdiknort	Dick Barton#
abcdiknoww	window back*
abcdikrrsy	brickyards@#
abcdillonr	collar bird*
abcdilmoor	Arcimboldo@
abcdilmory	bicondylar*
abcdilnost	cnidoblast*@

acegimnnopst	compensating
acegimnnoptt	magnetooptic*
acegimnnorst	centimorgans@
acegimnnorsu	moringaceous* cousin german#
acegimnoprtu	praecognitum*
acegimnoprty	pyromagnetic*
acegimnprsuu	measuring cup*
acegimnsstvy	caving system*
acegimnstttu	metatungstic*
acegimoprtyz	prezygomatic*
aceginnnortv	contravening#
aceginnoprtz	precognizant*
aceginnorstt	nonstrategic*
aceginoprrsu	superorganic*@
aceginorsssu	graciousness
aceginorsstt	stenogastric*
accgioooprst	aposeotropic*@
acegioorrsuv	overgracious*
acegioorsttx	excogitators@
acegioprstty	cryptostegia*

Of the three anagram dictionaries, the computer-based one has a sample of 49 words and phrases, Collins 30 and Longman 33. However it is worth noting that the longer the word, the more the computer-based one dominates, largely because of esoteric words. Only 16 words are common to all three dictionaries.

I know of no internet-based anagram dictionaries as large as the one based on Webster's Second Unabridged. This may be because, after 40 years of computer development, it is now so easy to generate an anagram dictionary from a word list that posting one is not worthwhile.