ELEMENTAL, MY DEAR WATSON

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There are 103 chemical elements which can be identified by one-letter or two-letter abbreviations, listed below:

BCFHIKNOPSUVWY

Ac Ag Al Am Ar As At Au Ba Be Bi Bk Br Ca Cd Ce Cf Cl Cm Co Cr Cs Cu Dy Er Es Eu Fe Fm Fr Ga Gd Ge He Hf Hg Ho Ir In Kr La Li Lr Lu Md Mg Mn Mo Na Nb Nd Ne Ni No Np Os Pa Pb Pd Pm Po Pr Pt Pu Ra Rb Re Rh Rn Ru Sb Sc Se Si Sm Sn Sr Ta Tb Tc Te Th Ti Tl Tm Xe Yb Zn Zr

Dmitri Borgmann was the first logologist to suggest that words can be constructed out of these abbreviations, listing FeLuCCaS, PaRaNoIAcS and CHAmBErLaInS in the Nov 1974 Word Ways. (In the Feb 1975 Colloquy, Mary Youngquist said that chemists had been playing with such words for a "long time". Is there any mention of this in chemical literature?) Since then, elemental words have been mentioned rarely in Word Ways; this article attempts to summarize the field.

The longest-known elemental word was presented by Mike Keith in the Nov 1999 Kickshaws: SUPERCONDUCTIVITIES (19 letters). Brits can match this with OVErCaPITaLiSAtIONS. Ralph Beaman noted the charming word TiNTiNNaBULaTiON (16 letters). If no element can be reused, Mike Keith proposed IrReSPONSiBILiTiEs (18 letters). Ed Wolpow proposed PSYCHO-PANNYCHY as an elemental word using only single-letter abbreviations, in the Nov 1979 Word Ways. What is the longest word using only two-letter abbreviations? (HeLiCoPtEr is a start.)

Eight chemical elements are elemental words: SiLiCON, NeON, CoPPEr, AsTaTiNe, ArSeNiC, TiN, XeNoN and CaRbON. Of these, arsenic, tin, copper and carbon do not use their own abbreviations.

Elemental words are often expressible in more than one way. Among three-letter words, SIN, SiN, SIN and TIN, TIN, TiN have three representations. The shortest word expressible in four ways is COHO, COHO, COHO, COHO, and the shortest expressible in five is SINES, SiNES, SINES, SINES, SINES, SiNES. (Dave Morice notes that the theoretical maximum for a five-letter word is eight, achieved by the name HOSNI Mubarak.)

However, there is a seven-letter elemental word which can be written in thirteen different ways: COSINES, and

COSiNEs. No doubt there exists some elemental word that can be written in many more ways than thirteen!

A difficult but solvable challenge is to find elemental words incorporating all 103 different elements. The most recalcitrant ones:

AU AuCTION

BK NaBk

CD SYNeCdOCHe, CF FLiCfLaC, CM LaCmUS, CS TiCs

EU LiEu

FM HoOFmArK

GD AmyGdAUTiS

HF PAtHfINdEr, HG FLaSHgUN

KR CoCKrOAcH

LR HOsTeLrY

MD CIrcumduction, MG CIrcumgyRation, MN Calumny

NB BONDON, NP NoNpSYCHIC

PB HiPbONe, PD SLaPdAsH, PM CHIPmUNK, PT HeLiCoPtEr

RB CaRbON, RH CaRhOP, RN FeRn

SB GaSbAg, SR PReSSrUN

TB SeTbAck, TC CaTcH, TL CuTlAsS, TM LiTmUS

XE XeNoN

YB PLaYbOY

ZN BiZnAgAs, ZR ArZrUNiTe

Finally, one can use elemental words to rewrite "Mary Had a Little Lamb" (AGNUS is "lamb" in Latin):

ONe Tiny Agnus She Now Owns (SNOW-WHITE IS HEr CoAt). When HEr LaDy IS NeArBY, Agnus STays, I NoTe.

In Class ONe MoRn SHe Takes Her Place;
Teacher Cries "Shoo! RUN!"
Hear Those Lassies Scream "How Cute!
This Agnus--Pure Fun!"

Or, change lines 6-8 to provide a counterpart for line 4:

STERn LaW: No AgNUS HeRe.
BOYS PLuS LaSSiEs ScReAm "How CuTe!"
SUCH NoISY FUN, I FeAr.

Elemental prose is decidedly harder to write than E-less prose; 30 words of "Mary Had a Little Lamb" have no E's, but only 12 are elemental. Sixteen out of 34 (47 per cent) two-letter words in Webster's 1974 Pocket Dictionary are elemental, as are 166 out of 539 (31 per cent) three-letter ones. As words get longer, elemental words become increasingly rare.