

Scientific Terminology and Definitions

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A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

acetone bodies - include β -hydroxybutyric acid, acetoacetic acid, and acetone. These are sometimes end products of metabolism and are excreted as such. They are acidic and toxic in nature.

acetonemia - metabolic cattle disease usually occurring early in lactation; loss of flesh and milk production, and an unsteady gait. Prevention is a balanced ration.

acetylenes - see "alkyne"

Achilles tendon - attaches the gastrocnemius muscle to the Os Calcis.

acid - a substance which produces or donates protons (H^+).

acid (organic) - $R-C \begin{smallmatrix} \text{OH} \\ \parallel \\ \text{O} \end{smallmatrix}$ derivatives of hydrocarbons in which

one or more $-CH_3$ groups have been replaced by a carboxyl group. I.U.C. -e of hydrocarbon is dropped and -oic added, followed by word "acid".

acid alcohol - mix 50 ml. of 35% alcohol and 3 drops of pure hydrochloric acid.

acid forming foods - foods that leave an acid residue in the body after the food has been utilized (e.g., meat, eggs, fish and cereal).

acid halides - $R-C \begin{smallmatrix} \text{O} \\ \parallel \\ \text{X} \end{smallmatrix}$ I.U.C. - named after the acid by dropping

the -ic and adding -yl, followed by the name of the halide.

acid nitriles - $R-CN$

acorn - a winter variety of squash.

acre (A) - measure of surface area.

- 1A = 4,046.87 sq. meters (m^2)
- = 6,272,640 sq. in.
- = 43,560 sq. ft.
- = 4,840 sq. yd.
- = 0.40469 hectares (ha)
- = .001563 sq. miles statute
- = .004047 sq. kilometers (km^2)

A.C.S. - see "American Chemical Society"

actin - see "actomyosin"

actinium (Ac) - an element; at. no. 89; mass number of most stable isotope 227; electron configuration 2-8-18-32-18-9-2 orbit K L M N O P Q

oxidation state +3

actinomycetin - antibiotic agent effective against certain gram-positive as well as gram-negative organisms.

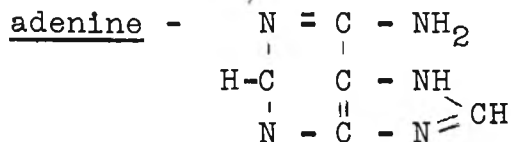
activators - ions whose presence promote enzyme activity.

actomyosin - globulin complex responsible for muscle contraction; consists of actin and myosin proteins.

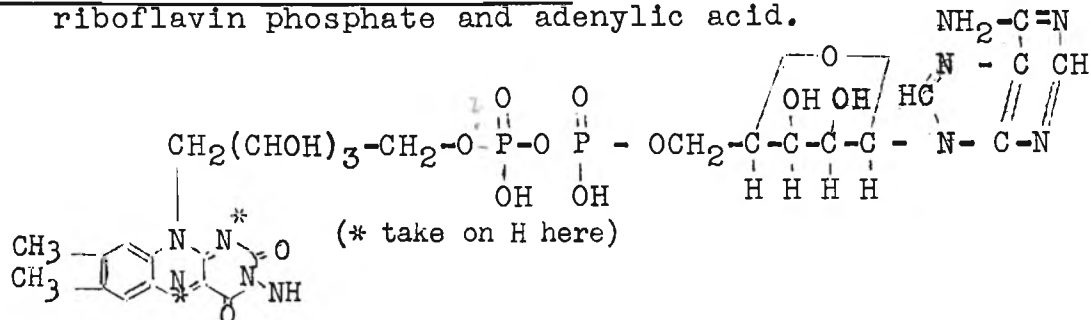
acyl group - $R-C \begin{smallmatrix} \text{O} \\ \parallel \\ \text{O} \end{smallmatrix}$

adductor - draw toward a medial position, to draw toward

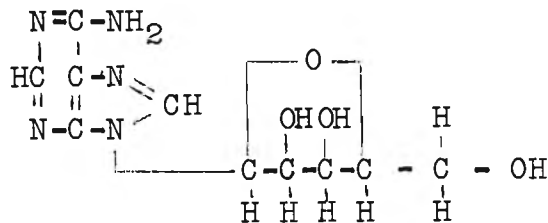
adductor (muscle) - large inside thigh muscle that is cranial to the semimembranosus and caudal, and medial to the femur.



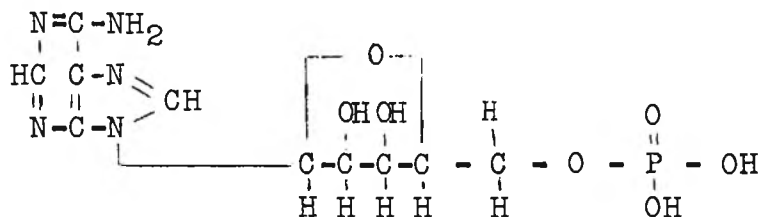
adenine-riboflavin dinucleotide - a dinucleotide containing riboflavin phosphate and adenylic acid.



adenosine - a nucleoside



adenylic acid - a mononucleotide of adenine



adrenal cortex extract - a drug extracted from the outer portion (cortex) of the adrenal glands of cattle, hogs and sheep and used to treat Addison's disease and shock.

adrenal glands - two small reddish brown glands located near the kidneys. Inner section of the gland is known as the medulla; outer portion is the cortex. This gland is stimulated by the hormone adrenocorticotrophic produced by the pituitary gland. I. Inner portion - produces a secretion which makes the blood vessels smaller and speeds up the heart rate. II. Outer portion - produces a secretion the lack of which causes Addison's disease.

adsorption - adherence of foreign particles to a surface

aerobic - with air; also see "obligate aerobes" and "facultative anaerobes"

after-taste - taste that follows the removal of the initial stimulus. It may be continuous with or follow after a period of time the initial stimulus.

Ag - see "silver"

aggregate fruit - fruit formed from a flower containing many pistils (e.g., blackberry)

agonal - dying

agricultural limestone - liming material composed of 52% CaCO_3 and 42% MgCO_3 ; each pound has the neutralizing equivalent of .95 to 1.08 lb. of CaCO_3 (or approx. this quantity of dolomitic limestone);

air slaked lime - liming material composed of 80-95% Ca(OH)_2 ; each pound has the neutralizing equivalent of .85 to 1 lb. of CaCO_3 (or approx. this quantity of dolomitic limestone).

aitch bone - see "ischium"

akenes - dry carpel having a single seed

Al - see "aluminum"

-al - I.U.C. ending for an aldehyde compound

alanine - monoamino-monocarboxylic amino acid. $\text{CH}_3\text{-CH}(\text{NH}_2)\text{-C(=O)OH}$

albuminoids - a simple protein that is insoluble in water, dilute salt solutions, dilute acids or alkalies, absolute or 70-80% alcohol. (e.g., keratin, elastin, collagen, and fibroin).

albumins - a simple protein which is soluble in water and dilute salt solutions and coagulable by heat.

alcohol - commercial alcohol is 96% (ethyl alcohol); see "absolute alcohol", "percentage dilution problems", "acid alcohol", "ethyl alcohol", and "methyl alcohol".

alcohol (organic) - $\text{C}_n\text{H}_{2n+2-y}(\text{OH})_y$

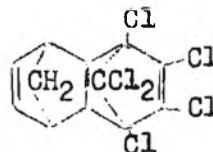
A group of compounds in which the hydrogen atom of a hydrocarbon is replaced by a hydroxyl group (OH). (e.g., R-OH). I.U.C. - replace -e of hydrocarbon name by -ol and add a number to show position of the -OH group.

alcoholometer - hydrometer calibrated in % alcohol

aldehyde - $\text{R-C}(\text{H})=\text{O}$

organic compound in which 2 hydrogen atoms on the end carbon atom are replaced by one oxygen atom. I.U.C. replace -e on hydrocarbon name with -al.

aldrin - insecticide (poison on ingestion); use is limited due to its volatility.



alfalfa - a perennial plant used for hay and pasture.

seeding - 25 lb./acre (60 lb./bu.); cutting - 1/10 flowers open; pH - 6.5 - 6.8; inoculation is essential. Varieties: Certified Atlantic, Certified Buffalo, Certified Williamsburg, DuPuits, Narragansett, and Oklahoma Common. Approx. nutrients used by 3 ton of hay - 170 lb. N, 48 lb. P_2O_5 , 150 lb. K_2O .

alfalfa meal - .6 lb./qt.

aliphatic compounds - open chain compounds (not rings)

aliquot - exactly measured volume.

alkadiene - C_nH_{2n-2} Hydrocarbon that contains 2 double bonds
I.U.C. ending -diene

alkane - C_nH_{2n+2} A saturated hydrocarbon (containing only
C and H) I.U.C. ending -ane

alkanesulfonic - see "sulfonic acid"

alkanethiol - R-SH Alcohol type structure with the oxygen atom
replaced by sulfur atom. I.U.C. hydrocarbon name followed
by -thiol.

alkene - C_nH_{2n} Hydrocarbon (open chain) containing one
double bond. I.U.C. ending -ene.

alkine - see "alkyne"

alkyl cyanide - see "nitrile"

alkyl group (R) - C_nH_{2n+1} Any aliphatic saturated hydrocarbon
radical with one free valence.
 $CH_3(CH_2)_n-$ or R-

alkyl halides - $C_nH_{2n+1}X$ Any alkane in which one hydrogen atom
has been replaced by an atom of
either fluorine, chlorine, bromine, or iodine.

alkyl metallic sulfate - $R-O-SO_2-O^{-+}M$

alkyl sulfate - $R'-O-SO_2-O-R$

alkyl sulfides - see "alkylthioalkane"

alkylthioalkane - $R'-S-R$ Ether type structure with -O-
replaced by sulfur atom. I.U.C. alkyl group, followed by
thio, followed by hydrocarbon name.

alkyne - C_nH_{2n-2} Hydrocarbon (open chain) containing one
triple bond. I.U.C. ending -yne.

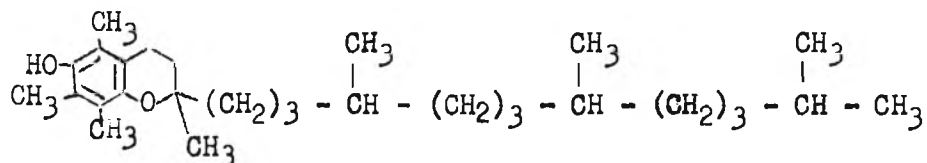
allspice or pimento (not pimiento) - (Pimenta officinalis Lindl)

dried nearly ripe fruit of pimento tree (tropical) used as
a spice. Contains: not less than 8% quercitannic acid;
not more than .4% ash insoluble in HCl; not more than 25%
crude fiber; and not more than 6% total ash. Has an aroma
similar to a mixture of nutmeg, cinnamon, and cloves.

alpha (A, α) - Greek letter with an English equivalent of a.

alpha amino acid - see "amino acid"

alpha-tocopherol - $C_{29}H_{50}O_2$ A chemical found in food stuffs
with vitamin E activity.



alsike clover - a perennial hay; seed 2 to 4 lb./acre,
(60 lb./bu.); pH - 6-6.8; inoculation is necessary;
cut in full bloom.

alta - a variety of fescue

alternating current (a-c) - a current which changes direction
flow at constant intervals.

alum - aluminum potassium sulfate; used to ppt. mud from water.

alum-cochineal - potassic alum - 6 g.; powdered cochineal - 6 g.; distilled water - 90 ml.; boil 30 min. on steam bath, allow to settle and pour off the liquid, add water to bring up to 180 cc, boil down to 90 cc, cool, filter, add a small amount of thymol or salicylic acid.

aluminum (Al) - an element; at. no. 13; at. wt. 26.98; oxidation state +3; electron configuration 2-8-3 orbit K L M

Am - see "americium"

American cheddar - a hard cheese

American Chemical Society - (A.C.S.) A.C.S. Grade. A designation of a grade of chemical purity that meets specifications of the American Chemical Society. Chemical grades according to decreasing purity: 1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

American leg of lamb - the tibia is removed from the leg and the meat that surrounded it is tucked under the fell.

American system - a system for grading wool based on Merino wool which is fine. Grades: Fine, half blood, 3/8 blood, 1/4 blood, low 1/4 blood, common, braid.

americium (Am) - a rare earth element; at. no. 95; mass number of most stable isotope 243; oxidation state +3, +4, +5, +6 electron configuration 2-8-18-32-24-9-2 orbit K L M N O P Q

amide - $\text{R}-\overset{\text{O}}{\underset{\text{O}}{\text{C}}}-\text{NH}_2$ An organic acid in which the OH group has been replaced by the amino group. I.U.C. - the -e is dropped from the hydrocarbon name and -amide added

AMIF-72 - an antioxidant containing butylated hydroxyanisole

amine - hydrocarbon in which a hydrogen atom is replaced by an amine group. Primary $\text{R}-\text{CH}_2-\text{NH}_2$; Secondary R_2NH ;

Tertiary R_3N I.U.C. - alkyl radical plus the word amine

aminoacetic acid - see "glycine"

amino acid - a basic unit of protein containing at least one amino group (NH_2) and at least one carboxyl group or a derivative of this basic structure. The amino group is attached to the α carbon (#2C). They are of L-configuration except glycine which has no asymmetric carbon. Will rotate polarized light both directions.

α aminocaproic acid - see "norleucine"

γ aminoglutaric acid - see "glutamic acid"

α aminoisocaproic acid - see "leucine"

α aminoisovaleric acid - see "valine"

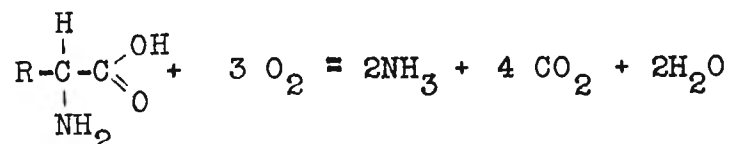
γ aminopropionic acid - see "alanine"

γ aminosuccinic acid - see "aspartic acid"

ammeter - is connected in series with the circuit and measures electric current

ammonia - NH_3 ; poor conductor of electricity; b.p. = $-33.35^\circ\text{C}.$; f.p. = $-77.7^\circ\text{C}.$; heat of vaporization 327 calories per gram; specific heat 1.07 calories per gram-degree.

ammonification -



ammonium carbamate - $\text{H}_2\text{N} \cdot \text{C} \begin{array}{l} \nearrow \text{O} \\ \searrow \text{O} \end{array} \cdot \text{NH}_4$

ammonium carbonate - $\text{NH}_4 \cdot \text{O} \cdot \text{C} \begin{array}{l} \nearrow \text{O} \\ \searrow \text{O} \end{array} \cdot \text{NH}_4$

ammonium hydroxide - (NH_3 in water); Mol. wt. 35.05; Eq. wt. 35.05;

Commercial strength	Mole/l	g/l	% by wt.	Specific gravity	Normality
-	14.8	251	28	.898	14.8

ammonium ion - $\text{NH}_4^+ \leftarrow \text{NH}_3 + \text{H}^+$

ammonium nitrate - a fertilizer material; fertilizer notation- 33.5-0-0; NH_4NO_3 ; 33.5% nitrogen (50% of this is ammonia and 50% is nitrate). Acid in nature and would require .58 lb. of dolomitic limestone to neutralize each pound applied. Also see "ANL" and "calnitro".

ammonium nitrate and lime - see "ANL"

ammonium phosphate - a fertilizer material; fertilizer notation 11-48-0.

ammonium sulfate - a fertilizer material; fertilizer notation 20.5-0-0; $(\text{NH}_4)_2\text{SO}_4$. Acid in nature and would require 1.1 lb. of dolomitic limestone to neutralize each pound applied.

amp - see "ampere"

ampere (a)(amp) - rate of current (I or i) flow;

1 amp = 6.24×10^{18} electrons per second; an electrical measurement;

$$\text{ampere} = \frac{\text{volt}}{\text{ohm}}$$

amphoteric - elements which are in the center of the electromotive force series and may either gain or lose electrons (act as a base or an acid) depending upon what elements they are associated with. (e.g., sulfur)

amphoteric hydroxides - hydroxides which have the properties of both acids and bases.

amylase - a carbohydrate digestion enzyme used to break down dextran into maltose.

amolytic - enzymes which act on carbohydrates.

analysis of variance (sub treatments)

		Treatment(a) i= 1... a								
Sub treat b		1			...			a		
j= 1... b		1	j	b	1	i	b	1	j	b
n obs	1	X ₁₁₁	X _{1j1}	X _{1b1}	X _{i11}	X _{ij1}	X _{ib1}	X _{a11}	X _{aj1}	X _{ab1}
per	⋮									
sub	k	X _{11k}	X _{1jk}	X _{1bk}	X _{i1k}	X _{ijk}	X _{ibk}	X _{alk}	X _{ajk}	X _{abk}
treat	⋮									
k=1...n	n	X _{11n}	X _{1jn}	X _{1bn}	X _{i1n}	X _{ijn}	X _{ibn}	X _{aln}	X _{ajn}	X _{abn}
	Σ	X _{11.}	X _{1j.}	X _{1b.}	X _{i1.}	X _{ij.}	X _{ib.}	X _{a1.}	X _{aj.}	X _{ab.}
	Σ	X _{1..}			X _{i..}			X _{a..}		
	Σ	X _{...}								

- | | |
|---|------------------|
| (1) C = (X _{...}) ² /abn | df |
| (2) Total SS = Σ X _{ijk} ² - C = (X ₁₁₁) ² + ... (X _{abn}) ² - C | abn-1 |
| (3) Total SS for sub treat = Σ X _{ij.} ² /n = (X _{11.}) ² + ... (X _{ab.}) ² /n | ab-1 |
| (4) SS for error or Individual = total SS(2) - total SS sub treat(3) | (abn-1) - (ab-1) |
| (5) Total SS for treatment = (Σ X _{i..}) ² /bn - C = (X _{1..}) ² + ... (X _{a..}) ² /bn - C | a-1 |
| (6) SS sub treat of same treat = total sub treat(3) - SS treat(5) | (b-1)a |

Sources of variation	df	SS	MS
Total	abn-1	(2)	
Total for treatment	a-1	(5)	SS/df
SS Sub treat of Same treat	(b-1)a	(6)	SS/df
Individuals	(abn-1) - (ab-1)	(4)	SS/df

F for treatment = $\frac{MS(5)}{MS(6)}$ df-(5) / df-(6)

F for sub treat = $\frac{MS(6)}{MS(4)}$ df-(6) / df-(4)

angstrom (\AA)(A.U.) - $1\text{\AA} = 1 \times 10^{-8} \text{ cm}$
 $= 10^{-10} \text{ meter}$
 $= 3.937 \times 10^{-9} \text{ inches}$
 $= 0.0001 \text{ microns } (10^{-4} \mu)$
 $= 0.1 \text{ milli-microns}$

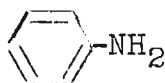
Angus - see "Aberdeen-Angus"

anhydride - $\text{R}'-\overset{\text{O}}{\underset{\text{O}}{\parallel}}\text{C}-\text{O}-\overset{\text{O}}{\underset{\text{O}}{\parallel}}\text{C}-\text{R}$

anhydrous - without water

anhydrous ammonia - a liquid fertilizer material which turns into a gas at atmospheric pressure; NH_3 ; fertilizer notation 82-0-0; acid in nature and would require 1.47 lb. of dolomitic limestone to neutralize each pound applied.

aniline - a colorless coal-tar or indigo derivative which is the basis for many brilliant biological stains.



animal fat - a product obtained from the tissues of mammals and poultry. Contains not less than 90% total fatty acids; not more than 2.5% unsaponifiable matter; and not more than 1% insoluble matter.

animal protein factor (APF) - see "vitamin B₁₂"

animal starch - see "glycogen"

animation - an abundance of life; opposite of sleepiness or dullness

anion - negative ion

anise (pimpinella anisum) - seed from a Mediterranean plant used as spice; not more than 9% total ash; not more than 1.5% HCl insoluble ash

aniseed - see "anise"

ANL (ammonium nitrate and lime) - a neutral fertilizer material made from ammonium nitrate (NH_4NO_3) and lime; 9% CaO, 7% MgO

annatto - a vegetable yellowish-red dye used for butter coloring

anode - positive electrode

antagonism - opposing; conflicting principles

ante mortem - before death

anterior - see "ventral" (belly); in comparative anatomy, see "cranial" (front or head)

anterior pituitary - see "pituitary"

anthocyanin - a red plant pigment; also found in blue and purple plants.

anthracene -



anti - against

antiberiberi - see "thiamin"

antibiotic - substance which occurs in nature and is usually of microbial origin; inhibits the growth of bacteria.

- anti black tongue factor - see "niacin"
- anti egg white injury factor - see "biotin"
- antihemorrhagic - see "vitamin K"
- antimony (Sb) - an element; at. no. 51; at. wt. 121.76;
oxidation states +3, +5, -3;
electron configuration 2-8-18-18-5
orbit K L M N O
- antineuritic - see "thiamin"
- antioxidants - not more than 3/1000 of 1% BHA; 1/1000 of 1%
citric acid; may be used in unsmoked dry sausage during
preparation for trichinae treatment.
- anti-pernicious anemia factor - see "vitamin B₁₂"
- antirachitic vitamin - see "vitamin D"
- antiscorbutic vitamin - see "ascorbic acid"
- antisterility factor - see "vitamin E"
- anti-xerophthalmia - see "vitamin A"
- APF (animal protein factor) - see "vitamin B₁₂"
- aphid - a small insect (less than 1/8 in.) that has the
following characteristics: soft, oblong, 6 legs, winged or
wingless, green, yellow or black; they suck sap from cotton
leaves and produce honeydew which causes the leaves to curl
downward; Control: parathion, demeton.
- apthous fever - see "foot and mouth disease"
- apothecary wrap - see "drug store wrap"
- apple - 1 barrel = 3 bushels = 150 lbs.
- | <u>apple grades</u> | <u>USDA grades</u> | <u>Western states</u> |
|---------------------|--------------------|-----------------------|
| | Extra fancy | Extra fancy |
| | Fancy | Fancy |
| | No. 1 | C |
- apple (cider) vinegar - made from apple juice;
Min.: 4% acetic acid
1.6% apple solids (max. 50% reducing sugars)
0.25% apple ash (min. water soluble ash .01% of
phosphoric acid P₂O₅)
- Ar - see "argon"
- arabinose - a 5 carbon monosaccharide (pentose) found in
fruit juices and gum
- arachidic acid (arachic acid) $\text{CH}_3(\text{CH}_2)_{18}\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$
- A 20 carbon saturated acid found in peanut oil.
- arachidonic acid - $\text{CH}_3(\text{CH}_2)_4\text{CH}=\text{CHCH}_2\text{CH}=\text{CHCH}_2\text{CH}=\text{CHCH}_2\text{CH}=\text{CH}(\text{CH}_2)_3\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$
- A 20 carbon acid found in animals.
- archil - a coloring material derived from a vegetable and used
in food; will produce violet red, blue or purple colors
- are - a measure of area; 1 are = 100 sq. meters
= 119.6 sq. yards
= 0.025 acre

area - area of triangle = $\frac{1}{2}(\text{base} \times \text{height})$;
 area of circle = πR^2 or = $.7854 (D)^2$; ($\pi = 3.1416$);
 square and circle of equal area: side of square = $(D).8862$
 area of sphere = $(D)^2 \times 3.1416$

areolar connective tissue - connective tissue in the form of
 a loose network with a great deal of space between fibers

arginine - a basic amino acid $\text{NH}_2\text{-C-NH-(CH}_2\text{)}_3\text{-CH-C}^{\text{OH}}$
 $\begin{array}{c} \parallel \\ \text{NH} \end{array} \quad \begin{array}{c} | \\ \text{NH}_2 \end{array} \quad \begin{array}{c} \diagup \\ \text{O} \end{array}$

argon (A or Ar) - an element; at. no. 18; at. wt. 39.944;
 oxidation state 0; electron configuration 2-8-8
 orbit K L M

aril - external fleshy covering of seed

Arlington - a variety of lespedeza (Sericea)

arm bone - humerus

arm roast - beef roast made by cutting across the fore arm bone

arm steak - steak made from the same area as an arm roast

armyworm - see "fall armyworm"; a worm whose larva feeds on small
 grain and strips it of its leaves; Control: DDT, endrin,
 toxaphene.

aroma - fragrance or odor

aromatic - organic closed ring compounds whose structure is a
 modification of benzene



aromatic acid - one or more of the hydrogen atoms of the aromatic
 nucleus has been replaced by the carboxyl group.

aromatic alcohol - organic compounds in which a hydrogen atom
 on a side chain, which is attached to a ring structure,
 is replaced by a hydroxyl group.

arrowroot starch - starch obtained from roots of a West Indies
 tropical plant and used as a thickening agent in cooking

arsenic (As) - an element; at. no. 33; at. wt. 74.92;
 oxidation states +3, +5, -3; electron configuration 2-8-18-5
 orbit K L M N

arsine - AsH_3

artefact (artifact) - artificial change

artery cure - pumping the curing pickle into a ham through the
 femoral and allowing the blood vessels to distribute the cure
 to the ham.

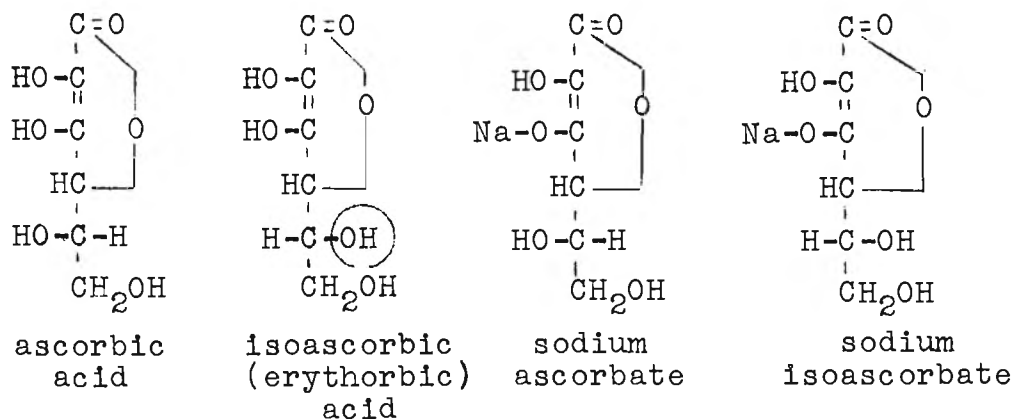
artificial insemination - the introduction of spermatozoa into
 the vagina or uterus by instrumental rather than natural means.

As - see "arsenic"

Ascaris suis - round intestinal worms that are parasites in hogs

asclepiain - a protease enzyme found in the juice of the milkweed

ascorbic acid (in cured meat) - can be used in cured meat to speed up color reaction



3/4 oz. ascorbic or isoascorbic acid per 100 lb. meat
 .875 oz. sodium ascorbate or sodium isoascorbate per 100 lb. meat
 75 oz. ascorbic or isoascorbic acid per 100 gal. pickle (10% pump)
 87.5 oz. sodium ascorbate or sodium isoascorbate per 100 gal. pickle (10% pump)

10% spray solution may be applied to outer surface.

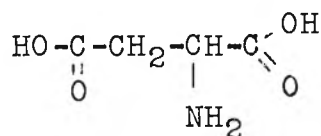
ascorbic acid (vitamin C) - a water soluble vitamin whose deficiency causes a disease known as scurvy; body does not store; Deficiency - bleeding gums, sore joints; source - citrus fruits, tomatoes, cabbage, lettuce, carrots, apples, potatoes, liver.

-ase - ending used in naming enzymes; -ase is added to the end of the substrate on which the enzyme acts.

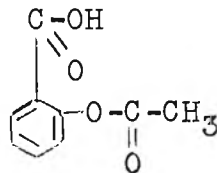
ash analysis - determined by incinerating the sample at high temp. (525°C.) for 16 to 18 hrs. and reporting the residue as ash.

asparagus - vegetable whose stem is used for food

aspartic acid - a monoamino-dicarboxylic amino acid



aspirin (acetylsalicylic acid) -



astatine (At) - an element; at. no. 85; mass number of most stable isotope 210; electron configuration 2-8-18-32-18-7 orbit K L M N O P

asternal rib - see "false rib" and "ribs"

astrakhan fur - made from the fur of fat tailed sheep

asymmetric carbon atom - carbon atom to which is attached 4 different atoms or groups of atoms; a compound containing this atom will be optically active.

At - see "astatine"

-ate - I.U.C. ending for esters and salts

atlas - 1st cervical vertebra (neck bone) which attaches to the head

atmosphere (standard, 760 mm) - a measure of pressure

1 standard atmosphere = 1.03329 kilograms per sq. centimeter
(kg/cm²)

= 14.6969 pounds per sq. inch (psi)

= 2,116.35 pounds per sq. foot (psf)

= 760 millimeters (columns of mercury,
Hg. 13.59593 sp. gravity at 0°C.
and under standard acceleration
of gravity).

= 29.9212 inches (columns of mercury,
Hg. 13.59593 sp. gravity)

= 10.3329 meters (columns of water,
max. density at 4°C., 39°F.)

= 33.9006 feet (columns of water,
max. density at 4°C., 39°F.)

= 1,013,250 dyne/cm²

At atmospheric pressure, there are 2.7×10^{19} molecules per cubic centimeter.

atom - the smallest particle of an element that contains the properties of that element

atomic number (at. no.) - a number indicating element location in the periodic table

atrio-ventricular node - area of the heart which receives the impulse after the auricles have contracted and passes it on by the "bundle of his" to the ventricles.

atrium - see "auricle"

atto- - (one quintillionth) 0.000 000 000 000 001

Prefix for quantities smaller than the base unit.

Au - see "gold"

aureomycin - see "chlortetracycline"

auricle - upper chambers of the heart called right and left auricle

average error - a method of expressing error for a single observation and an average of a series of measurements.

Average error for a single determination (a):

$$a = \frac{\pm \sum V}{n}$$

$\sum V$ = sum of deviation from the average regardless of sign

n = number of observations

Average error for an averaged value for n observations (A):

$$A = \pm \frac{\sum V}{n \sqrt{n}}$$

average error 0.8453 = probable error.

average error 1.2532 = mean square error.

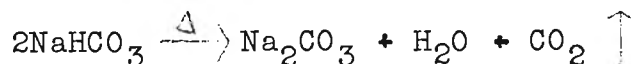
Avogadro's number (N) - 6.06×10^{23} molecules per gram molecule

a_w - see "water activity"

axial - the axis of a structure.

Ayrshire - dairy breed of cattle which originated in Scotland; they are white with patches of red to brown.

baking soda - sodium bicarbonate; when it is heated, it produces carbon dioxide which can be used as a leavening agent in cooking.



Baldwin - a variety of apple which is in season from Nov. to March; good sauce and cooking apple and fair eating apple

ball and socket - see "ground glass joints"

ball mill - a porcelain container filled about $\frac{1}{2}$ full with flint-like balls and rotated in the horizontal position; used to mix and grind chemical samples

banana - a fruit; 60% edible

Bang's - a cattle disease causing abortion, weak calves, sterility and retaining afterbirth; usually spread by infected animals; infected animals should be slaughtered; called undulant fever in man; see "brucellosis"

bar - a measure of pressure equal to one million dynes/sq.cm.

1 bar = 33.46 feet of water at 4°C.
 = 29.53 inches of mercury at 0°C.
 = 1.020 kilograms/sq.cm.
 = 14.504 pounds/sq.in.
 = 0.987 standard atmosphere

barbecue - meat with sauce roasted over coals or in an oven

barding - thin strips of bacon fat secured to meat

barium (Ba) - an element; at. no. 56; at. wt. 137.36;
 oxidation state +2; electron configuration 2-8-18-18-8-2
 orbit K L M N O P

barley (Hordeum vulgare) - an annual grain; seed - 2 bu./acre (47-48 lbs./bu.); 1.5 lbs./qt.; ground barley 1.1 lbs./qt.; pH 6.0; varieties: Davie

barley sugar - sucrose which has been heated until it melts and allowed to recrystallize in large granules

barrel (oil) - 42 U.S. gallons of oil

barrel (U.S.) (liquid) - a measure of volume

1 barrel = 7276.5 cu.in.
 = 1.1924 x 10⁵ ml.
 = 119.2369 liters
 = 32256 drams (U.S. fl.)
 = 4032 ounces (U.S. fl.)
 = 4196.7 ounces (Br. fl.)
 = 31.5 gallons (U.S.)
 = 26.23 gallons (Br.)
 = 4.2109 cu.ft.
 = 0.11924 cu.meter

barrow - a male hog that has been castrated before advanced sexual development

Bartlett - a variety of pears

base - any substance which accepts or acquires protons (H⁺)

base forming foods - foods that leave an alkali residue in the body after the food has been utilized (e.g., milk, nuts, most fruits, potatoes, and legumes)

- basic slag - a fertilizer material which is a by-product of the steel industry; fertilizer notation 0-9-0; basic in nature and is equal to .5 - .7 lbs. of dolomitic limestone for each pound of material; 8-10% P₂O₅, 46% CaO, 6% MgO
- basil (sweet basil)(herbe royale)(Ocimum basilicum L.) - a spicy annual herb of the mint family; green 1½ inch leaves used as seasoning
- baste - to moisten food during cooking
- bating - a digesting process used on hides prior to tanning to make them soft or pliable; agents used: (1) manures (2) desiccated pancreas enzyme (3) a wood enzyme; see "puering"
- bay leaves (laurel)(Laurus nobilis L.) - dried leaves from an evergreen tree used as an herb
- Be - see "beryllium"
- bean - a vegetable whose seed is used as food
- bean (Lima) - 35 lbs./bu. in pod; seed 50-75 lbs./acre; spacing 4-8 in.; harvest - when pod is full
- bean grades (edible) - U.S. Grade 1,2,3; handpicked grades -
- | |
|------------------------------|
| U.S. No. 1 choice handpicked |
| U.S. No. 1 handpicked |
| U.S. No. 2 " |
| U.S. No. 3 " |
- bean pork - fresh jowls
- bean (snap) - 30 lbs./bu.; seed 50 lbs./acre; spacing 3 in. in rows 3 feet apart
- bearish - a downward trend
- béarnaise - a meat or fish hot sauce; made of eggs, butter, tarragon and seasonings
- beef - flesh from bovine animal at least 10 months old; 1 barrel = 200 lbs.
- beef briskets - max. gain in wt. on curing 20% over fresh uncured wt.
- beef extract - a product obtained by boiling lean beef under vacuum, straining the broth, and evaporating it to 50% water; salt is then added
- beef grades - Prime
Choice
Good
Commercial
Utility
Cutter
Canner
- beef hams - see "dried beef"
- Beefmaster - a cross of Brahman on both the Hereford and Shorthorn in a 3-way cross
- beef tea - extract made by simmering beef
- beef tongues - see "cured beef tongues"
- beef tree - an instrument attached to the rear legs of a beef carcass during slaughter and this is attached to a hoist for raising the carcass
- beef with barbecue sauce - min. 50% meat (wt. of cooked and trimmed meat) or 72% uncooked meat

beet - a vegetable whose root is used as food

beet pulp - dried .6 lb./qt.

beet sugar - see "sucrose"

beignet - paste fritter

bell scraper - a metal dome-shaped scraper with a wooden handle used to remove hair or dirt from a hog carcass

belly - area of a hog carcass from which bacon is made and spare ribs removed; trimmed hog belly 14% of hog carcass

Beltsville No. 1 - a breed of hogs originated by U.S.D.A. and consists of a cross between Danish Landrace (75%) and Poland China (25%). It is black with white spots and has drooping ears.

Beltsville No. 2 - a breed of hogs originating with U.S.D.A. by crossing Yorkshire (58%) and Duroc (32%) and also adding 5% Hampshire and 5% Landrace blood. It is red in color and has a white underline and occasional black spots.

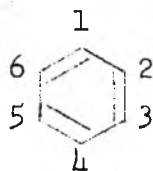
bench-legged - see "knock-kneed"

Benedicts - test for reducing sugar

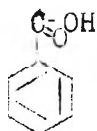
bene seed - see "sesame seed"

benne seed - see "sesame seed"

benzene -



benzoic acid -



beriberi - disease caused by lack of thiamin

berkelium (Bk) - a rare earth element; at. no. 97; mass number of most stable isotope 249; oxidation states +3, +4
electron configuration 2-8-18-32-26-9-2
orbit K L M N O P Q

Berkshire - A meat type breed of hogs that originated in South Central England from Chinese, Siamese and Italian strains. It is black, preferably with 6 white points, has an erect ear, and a turned-up snout.

Berkshire Knot - large, horned, dark face breed of sheep

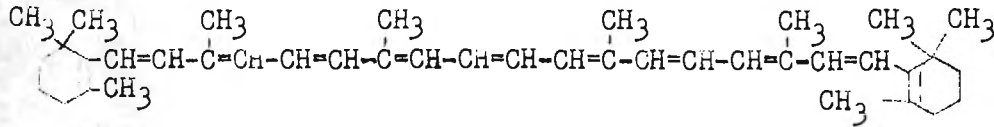
Bermuda grass (wire grass) - a perennial plant used for pasture and lawns; hard to eradicate; pH 5.0-5.5; approx. nutrients used in growing 3 tons for grazing: 85 lbs. N, 18 lbs. P₂O₅, 60 lbs. K₂O; varieties: Coastal, Common

Bermuda plan - Hotel plus American style breakfast

berry (true) - a subdivision of simple fruit; it has a fleshy ovary wall enclosing one or more seeds and attached to a fleshy placenta; (e.g., gooseberry, currant, cranberry, grape, banana, tomatoe, eggplant); fruit usually referred to as berries fall under the aggregate fruit classification

beryllium (Be) - an element; at. no. 4; at. wt. 9.013;
oxidation state +2; electron configuration 2-2
orbit K L

beta (β) - Greek letter with an English equivalent of b
beta-carotene ($C_{40}H_{56}$) - a carotenoid which can be transformed
to vitamin A in the liver



beta ray - high speed, negatively charged particle coming from the
nucleus of radioactive elements. Physically similar to an
electron moving at high speed

beurre noir - brown butter

BHC - see "lindane"; comes from incorrect name of benzene
hexachloride

bi - double or twice

Bi - see "bismuth"

biceps brachii - a muscle of the chuck that lies in front of the
humerus; attaches to the head of the radius

biceps femoris - a thigh muscle running from the ischium (ox) or
from the ilium over the ischium (other animals) to the back
of the tibia; it is the large lateral muscle of the round;
part of the bottom round

bidly - term used for chicken; more often applied to the female
of the species

big packer hides - hides removed from the carcass by relatively
skilled labor

Big Stem Jersey - a dry mealy variety of sweet potato

bile salts - function is emulsification of fats which can then be
hydrolyzed more rapidly

billbugs - an insect that makes holes in corn stalks near the
ground or across the corn leaves; often kills bud of young
plant; Control: early planting, rotate, avoid infested area
for few years, treat plowed area - aldrin, heptachlor

biltong - meat cut into strips, rubbed with a curing mixture,
and dried

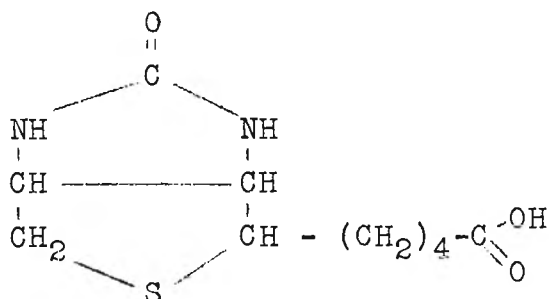
binder (sausage) - term used in sausage manufacture to indicate a
material that will absorb and hold moisture at elevated
temperatures; may not contain over $3\frac{1}{2}\%$ collectively or in-
dividually: (1) cereal (2) vegetable starch (3) starchy
vegetable flour (4) soya flour (5) non-fat dry milk (dried
skim milk) (6) dried milk (7) max. 2% isolated soy protein

binders - cross fibers that bind sheep fleece together

binomial distribution - a population which can be divided into
2 classes; (e.g., yes and no); the variable is a discrete value
in contrast to a continuous variable

biological value (protein) - the percentage of true digestible
protein used by the body

biotin ($C_{10}H_{16}O_3N_2S$) - a water soluble vitamin which cures a nutritional disease of animals that consume large amounts of raw egg white. A protein (avidin) in the raw egg white combines with biotin making it unavailable to the animal; source: yeast, liver, milk



birdsfoot trefoil - a perennial legume; seeding 10-12 lbs./acre with other grasses; varieties: Cascade, Granger, Parker, Viking

bis - see "bi"

bisk - see "bisque"

bismuth (Bi) - an element; at. no. 83; at. wt. 208.99; oxidation states +3, +5; electron configuration 2-8-18-32-18-5
orbit K L M N O P

bisque - a thick fish or game soup that has been strained

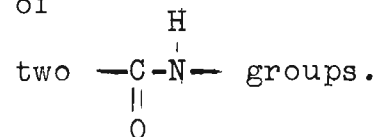
bisulfate group - $-O-SO_2-OH$

bisulfate ion - HSO_4^-

bitter chocolate - see "chocolate"

bitterweed - when eaten by cattle will cause off-flavors in milk

Biuret Test - a general test for protein; a pink to purple color is formed when protein is heated with alkali and copper sulfate; The color is due to the presence of



Tripeptides and all native proteins give a positive test.

Bk - see "berkelium"

black - a variety of cowpeas

black and gray fleeces - wool containing some dark fibers; cannot be used for making light colored fabric

Blackface - Hampshire, Oxford and Shropshire sheep or lambs sired by a ram of one of these breeds

Black-faced Highland - a long fleece breed of sheep originating in Scotland

Black Leaf 40 - 40% solution of nicotine sulphate insecticide

black pepper - see "pepper"

black rice - see "wild rice"

black strap molasses - molasses in which most of the sugar has been removed. It is dark in color, strong in flavor, high in ash content and used for fermentation purposes

black tea - tea made from leaves that have been fermented (oxidized) to darken the leaves and soften the flavor before being steamed, rolled and dried; see "tea"

black teeth - long tusks of young pigs

black tongue - see "pellagra"

bladebone - see "scapula"

bladebone steak meat - see "clear cut shoulder"

blade rib roast - see "chuck rib roast"

blanch - to place in boiling water to loosen skin, set color or remove color

blancmange - a thickened, molded milk dessert

blemish - a mark, injury, or deformity of the skin or adjacent tissue that would mar appearance but not usefulness of an animal

blend - to combine well

blended fur - means dyed furs

blended whiskey - mixing of 2 or more straight whiskeys (100 proof) or mixing of straight whiskey with silent spirit or water; caramel is usually added

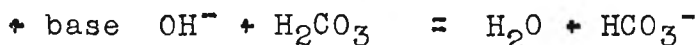
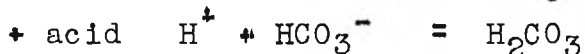
bloat - a condition caused by failure to eliminate normal gases from the rumen; usually occurs after placing on lush pasture; swelling high above the left flank, unsteady gait, the animal will go down

bloater - herring (fish) that have received a medium salt cure and are smoked overnight

blocked furs - whole skins sewn together in bands

blocky - deep, compact, wide and low set

blood - buffering system compounds HCO_3^- , H_2CO_3 , HPO_4^{--} , H_2PO_4^- , hemoglobin



normal pH range 7.3 to 7.5

blood albumin - blood serum that has been clarified and dried

blood flour - dried blood in fine powder form

blood meal - dried ground blood; approximately 85% protein

blood system - see "American system"

bluegrass - a perennial plant used for pasture and lawns; pH 6.0 - 6.8; varieties: Kentucky

bluestone - $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ cupric sulfate

boar - an uncastrated male pig or hog

board feet - a measure of lumber

$$\text{board feet} = \frac{\text{width(inches)} \times \text{thickness(inches)} \times \text{length(feet)}}{12}$$

$$\begin{aligned} 1 \text{ board foot} &= 144 \text{ cu.in.} \\ &= .0024 \text{ cu.meter} \end{aligned}$$

bob veal - carcass of immature veal

bog-spavin - an unsoundness (encysted tumor) located at the front inside the hock in horses

boil - to cook in liquid at boiling temperature

boiled ham - a cured, unsmoked ham which is boned, cooked, compressed and shaped

boiled soap - a hard soap made from tallow or grease, using a soda base and removing the glycerin fraction

boiling point (B.P.) - temperature at which a liquid turns to a vapor; normal boiling point - the temperature at which the vapor pressure of a liquid reaches 760 mm of mercury

bolar roast - a beef roast made from the lower half of clear cut shoulder (shoulder clod)

boli - see "bolus"

boll weevil - insect that lays its eggs in cotton buds and bolls; the larvae destroy the fruit; adult - gray brown with long snout, about $\frac{1}{4}$ inch long; larva - white with brown head; chemicals used for control: aldrin, calcium arsenate, dieldrin, endrin, guthion, heptachlor, lindane, malathion, toxaphene

bollworm - a moth which lays its eggs on squares, blooms and bolls of cotton and the larva destroys the fruit; adult - a gray brown moth with green areas, wing spread approximately $1\frac{1}{2}$ in.; larva: (young) - white and brown; (old) - green to orange with brown stripes; Control - DDT, endrin, toxaphene

bologna - a comminuted, cooked, smoked, large casing, sausage.

Normally contains 60% beef and 40% pork; however, the following percentages are found in formulations:

20-60% bull or beef	* $\frac{1}{4}$ oz./100 lbs - sodium nitrite
trimmings	*0 - 2 oz./100 lbs - sodium nitrate
30-60% regular pork	*7 - 16 oz./100 lbs - sugar
trimmings (50-50)	*0 - $\frac{7}{8}$ oz./100 lbs (add late in chopping) - sodium ascorbate
0-10% hearts	
0-32% pork cheek meat	*4 - 6 oz./100 lbs - white pepper
0-25% veal	or
0-35% beef brisket & cheek meat	4 - 6 oz./100 lbs - black pepper
	*0 - $2\frac{1}{2}$ oz./100 lbs - ground cardamon
0-10% cooked beef tripe	
0-25% back fat	*2 - $2\frac{1}{2}$ oz./100 lbs - coriander
10-40% ice	*0 - $1\frac{3}{4}$ oz./100 lbs - allspice
2-3% salt	*0 - 1 oz./100 lbs - mace
0-8% binder	*0 - 2 oz./100 lbs - sage
non fat dry milk	0 - $1\frac{1}{2}$ lbs/100 lbs - fresh onions
dry skim milk	0 - 2 oz./100 lbs - nutmeg
soya flour	0 - $\frac{3}{4}$ oz./100 lbs - fresh garlic
	0 - 2 oz./100 lbs - ginger
	*combination often used

Processing:

1. grind through $\frac{3}{8}$ inch plate
2. chop beef
3. add seasoning and cure (not ascorbate)
4. add binder and ice as needed
5. add pork, ice and ascorbate
6. do not exceed 65°F.
7. stuff
8. smoke house temperature:

time	temperature	conditions
$\frac{1}{2}$ hr	130°F.	dry
1 hr	155°F.	smoke
$1\frac{1}{2}$ hr	160°F.	smoke
$1\frac{1}{2}$ hr	185°F.	cook (until internal temperature of 150 to 155°F. is reached)

shower for 20 - 30 min.
room temperature - 1 hr.
store in cooler

bolus - food that a ruminant regurgitates for remastication before reswallowing

bombe - a ball shaped confection

bone - connective tissue and $[\text{Ca}_3(\text{PO}_4)_2]_n \text{CaCO}_3$; retail meat store bones will yield:

60% meat scraps

30% moisture

10% tallow

boneless sirloin - boned muscle of the loin end wholesale cut

borax - sodium salt of boric acid, $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$

bordelaise - a sauce made of red wine, shallots, thyme and pepper

bormite - trade name of silicates used to soften water, see "hardness of water"

boron (B) - an element; at. no. 5; at. wt. 10.82; oxidation state +3; electron configuration 2 - 3
orbit K L

borsh - a vegetable stock soup

bos - zoological genus which includes all cattle (and buffalo)

Boston butt - upper portion of a pork shoulder

bottled in bond - whiskey matured 4 years; 100° proof

bottom chuck - inside portion of a beef chuck when this area is divided along the blade bone

bottom round - outside muscle of the round; it is a tougher muscle than the top round; see "outside round"

botulinum - see "Clostridium botulinum"

botulism - a type of food poisoning caused by consuming toxin produced by the anaerobic bacteria Clostridium botulinum

bouillabaisse - a stew made from fish, shellfish, onions, tomatoes, and spices

bouilli - fresh boiled beef

bouillon - broth made from meat

bouillon cube - contains meat and vegetable extract and seasoning

Bouin's picro-formol - picric acid, saturated

aqueous solution (1g/75 ml H_2O) 75 parts

formalin 25 parts

glacial acetic acid 5 parts

not for use with kidney or cells containing mucin

1. fix for 4 to 16 hrs

2. wash with several changes of 50% alcohol

3. wash with several changes of 70% alcohol

4. store in 70 or 80% alcohol

boula boula - soup made of turtle, sherry wine and whip cream

bound water - water that has been absorbed by the colloids of the living cell

bouquetière, à la - with several vegetables

bourbon whiskey - an alcoholic beverage made from a mash which contains at least 51% corn in its grain content (usually 65 to 75% corn); aged in charred new oak containers

bovine - comes from the word bos and means cattle

bow-legged - knees too far apart

box curing (pressure) - curing bacon in a box and applying pressure to it during cure. Cure: use 3/4 oz. cure/lb bacon. Time in cure not too important since bacon will not over-cure

Br - see "bromine"

Brabham - a variety of cowpeas

brachio-cephalicus - muscle that runs from the shoulder to the head along the ventral side of the neck

bracken fern - a poisonous plant

Bradford system - see "English system"

Braford - a cross of Brahman and Hereford beef cattle

Brahman (Zebu)(Indian cattle) - breed of beef cattle originating from several breeds of native India cattle. They have a prominent hump above the shoulders and excess skin below the neck and brisket; have flat horns and drooping ears and their color ranges from gray to red. Guzerat strain - most popular strain in U.S. Can withstand extreme heat and repel both flies and ticks.

Brahorn - a cross of Brahman and Shorthorn beef cattle

braising - a moist heat method of cooking; moisture is added and the product placed in a closed container and cooked either in the oven or on top of the stove

bran - the outer protective layer (pericarp) and the layer just under it (aleurone layer) in cereal grain

brandy - made by the distillation of wine or wine residues

Brangus - a cross of Brahman and Angus beef cattle

bratwurst - a sausage product made from lean pork trimmings

Ingredients: pork trimmings (70% lean)
 2% salt
 6 oz. white pepper/100 lbs
 1/2 oz. celery seed/100 lbs
 1/2 oz. mace/100 lbs
 1 oz. sage/100 lbs

Grind 1/8-inch plate; mix; stuff; cook in water to internal temp. of 148°F.

braunschweiger - a sausage normally made of 50% pork liver and 50% pork jowl; however, the following percentages are found in formulations:

40-50% pork liver	0 - 5 lbs. onion/100 lbs
20-50% pork jowl	0 - 4 oz. onion powder/100 lbs
0-12% bacon ends	*0 - 1 oz. sweet marjoram/100 lbs
or cured meat	*0 - 1 oz. cardamon/100 lbs
0-15% veal	*0 - 1 oz. mace/100 lbs
20-40% pork trimmings	0 - 1 oz. caraway seed/100 lbs
0-20% beef trimmings	0 - 3 oz. mustard/100 lbs
0-7 1/2% ice	0 - 1/2 oz. clove/100 lbs
0-5% binder	0 - 2 oz. coriander/100 lbs
*1.6-2.5% salt	0 - 1/2 oz. sage/100 lbs
*6-16 oz. sugar/100 lbs	
*1/8 - 2 oz. NaNO ₃ /100 lbs	* - this combination is used in
*1/8 - 1/4 oz. NaNO ₂ /100 lbs	some formulations
*2-6 oz. pepper/100 lbs	

(cont'd on page 26)

braunschweiger (cont'd)

Processing:

1. slash liver and place in ice water to bleach, drain
2. chop liver, ice and seasoning
3. add meat and chop
4. stuff
5. cook in 160°F. water until internal temp. of 145°F.
6. chill in ice water (internal temp. 90-100°F.)

Brazil nut (nigger toe)(cream nut)(Bertholletia excelsa) - a hard shelled nut used for food and oil

bread - contains: 62% total solids

- 1.1 - 1.8 mg thiamine/lb
- .7 - 1.6 mg riboflavin/lb
- 10 - 15 mg niacin or niacinamide/lb
- 8 - 12.5 mg Fe/lb

optional: 150 - 750 U.S. Pharmacopeia units of vitamin D/lb.

Also, to coat with bread crumbs

bread flour - see "hard-wheat flour"

breakfast sausage - may be made from fresh or cured beef, pork, veal, lamb or mutton and may be fresh or cured; max. 50% fat

break joint - a temporary cartilage located $\frac{1}{2}$ inch above the ankle of a sheep. If this will break clean, the carcass is considered a lamb

bream - see "demersal fish"

breastbone - sternum sternebrae

breech wool - coarsest wool of the fleece and is produced on outer thighs and crotch area

breed - a race of animals having well-defined distinguishing characteristics and the ability to reproduce these characteristics in their offspring

breed character - a combination of masculinity or femininity with breed type features, and head type being very important

breeding age - first breeding: Jersey - 16 mo. Beef cattle-18 mo.
Guernsey - 18 mo. Swine - 8 mo.
Ayrshire - 19 mo. Sheep - 12 mo.
Holstein - 20 mo.

breed type - characteristic form of the breed along with the typical color, marking and head

brick - an American semi-hard cheese

Brie - a soft ripened cheese from France

Briggsian logarithms - see "logarithm base 10"

brightness - a term applied to the color of wool

bright wool - wool of a clean nature and uniform shrinkage; produced east of the "semi-bright" area

brine - salt dissolved in water

brioche - a soft sweet yeast breakfast roll

brisket - the front of the breast of quadruped animals

britch - fleece that comes from the rear legs of sheep; see "breech wool"

British Proof Spirit - contains 57.07% alcohol by volume (49.24% by weight) at 15.6°C.

British thermal unit (Btu)(B) - a measure of heat, energy, and work

- 1 Btu = 107.577 kilogram meters (kg-m)
- = 777.98 foot pounds (ft-lb)
- = .0003930 U.S. horsepower-hours (hp-hr)
- = .0003984 metric horsepower-hours (75 kg-m-hr)
- = .0002930 kilowatt hours (kw-hr)
- = 1,054.90 joules (10^7 ergs)
- = 0.252 kg-cal (thermal units)
- = heat required to raise the temp. of 1 lb. of water 1°F .

British thermal units per second (Btu/sec) - a measure of power, rate of energy, and heat.

- 1 Btu/sec = 107.577 kilogram meters per second (kg-m/sec)
- = 778.104 foot-pounds per second (ft-lb/sec)
- = 1.41474 U.S. horsepower (550 ft-lb/sec)
- = 1.43436 metric horsepower (75 kg-m/sec)
- = 1.05490 kilowatt (kw)
- = 1,054.90 watts (10^7 ergs/sec)
- = 0.25200 kg-cal/sec (thermal units per sec.)

broccoli (Brassica oleracea) - a vegetable whose flower is used as food

brochette, en - on a skewer or spit

broil - cook by direct heat

broilers - young chickens from 1 to $3\frac{1}{2}$ lbs.

broiling - a dry heat method of cooking used for the more tender cuts; the meat is exposed directly to the heat

bromcresol green - is 3,3', 5,5' tetrabromo-m-cresolsulfonphthalein
 .1 g in 100 ml alcohol; blue (basic) pH 5.4; yellow (acid)
 pH 3.8

bromcresol purple - an indicator which is yellow at pH 5.2 and purple at pH 6.8; 1/10th gram in 9.25 ml. N/50 NaOH and dilute to 250 ml.

bromelin (bromelain) - an enzyme found in pineapple used to tenderize meat

bromine (Br) - an element; at. no. 35; at. wt. 79.916;
 electron configuration 2-8-18-7; oxidation states +1, +5, -1
 orbit K L M N

bromthymol blue - an indicator that is yellow below a pH of 6; green between 6 & 7; and blue above 7; .1 g in 100 ml. of 50% alcohol

bronc (bronco) - an unbroken horse from the Mexican word meaning "mean"

bronk - see "bronc"

brood sow - a sow kept for the production of pigs

broth - thin soup

Brownian movement - motion of small particles in suspension caused by bombardment of the dispersing medium

brown rice - hulled, unpolished grain; contains more minerals and vitamins than polished white rice; see "unpolished rice"

brown sugar - sugar made from sugar cane that has not been as highly refined as white sugar

Brown Swiss - a dairy type breed of cattle that originated in Switzerland; solid color from light to dark brown

- brucellosis (Bang's disease) - a cattle disease which causes a loss of a large percentage of calves; calfhood vaccination is available
- brunoise - finely dried vegetables
- brussels sprouts (Brassica oleracea gemmifera) - a vegetable whose leaf is used as food
- Brut champagne (very dry) - a tart light wine with a piquant yet delicate flavor
- B.t.u. - see "British thermal unit"
- buck - male sheep
- buckeye (Aesculus) - a poisonous plant
- buck-kneed - knees bent slightly forward
- buckwheat (Fagopyrum) - fruit of a herbaceous plant
- buck wool - wool from rams; coarser and has a higher shrink than wether or ewe wool
- buffers - contains weak acids or weak bases together with the salts of weak acids or weak bases; mixtures of compounds which resist change in hydrogen ion concentration (pH)
- builders lime - a liming material composed of 85% CaO and each pound has the neutralizing equivalent of 1.5 to 1.75 pounds of CaCO₃ (or approximately this quantity of dolomitic limestone)
- bulgur - a parboiled wheat grain
- bulk comb honey - see "chunk honey"
- bull - entire (uncastrated) male of cattle
- bulldogging - same as "steer wrestling"
- bull hide - mature male uncastrated cattle hide weighing from 60 to over 100 pounds
- bullish - an upward price trend
- bundle of His - connecting length in the heart between the atrio-ventricular nodes
- bung - a natural casing used in the meat trade; in beef it comes from the caecum and in hogs it comes from the terminal end of the large intestine
- buoyant - an upward price trend
- Burgundy wine - a red table wine with a robust fruity flavor; see "Sparkling Burgundy"; also a white wine
- burned oyster shells - a liming material composed of 55% CaO and 5% MgO and each pound has the neutralizing equivalent of .9 to 1.1 pounds of CaCO₃ (or approx. this quantity of dolomitic limestone)
- Burong babi - pork fermented with Ang-kak (red mold grown on rice)
- burro - species of ass that is small in size
- bushel dry (imp)(Br.) - a dry measure of volume
- 1 bushel = 4 Br. pecks (Br.)
- = 36.368 liters
- = 1.032 bushel (U.S.)
- = 1.2843 cu. feet
- = 2218.192 cu.in.

bushel (Winchester bushel)(U.S.)(bu.) - a dry measure of volume and capacity

1 bu. = 35.2393 cubic decimeters (dm³)
 = 2,150.42 cubic inches (cu.in.)
 = 1.24446 cubic feet (cu.ft.)
 = 0.04609 cubic yards (cu.yd.)
 = 37.2368 U.S. liquid quarts (l. qt.)
 = 32 U.S. dry quarts (d. qt.)
 = 9.30920 U.S. liquid gallons (l. gal.)
 = 8 U.S. dry gallons (d. gal.)
 = 4 pecks (U.S.)
 = 64 pints (U.S.)
 = 35.238 liter (l.)

butcher's pepper - coarsely ground black pepper

butcher's round - round of beef without the rump

butcher's wrap - object is layed diagonally on paper close to one corner; this corner is placed over the object and the object is rolled to the diagonal corner, bringing the ends of the paper over the object while rolling it

butt end sirloin - 1st sirloin taken from the rump end of the wholesale cut loin end

butter - made from fat of milk or cream; is separated from cream by churning, then washed and salted; min. 80% milk fat

Ranges: 82.5 - 88% fat
 9.5 - 14.0% water
 0.5 - 1.50% curd
 0.5 - 5.0% ash
 see "churning"

butter fat - .930 - .940 specific gravity
 1.445 - 1.449 refractive index (60°C.)
 28 - 35°C. melting pt.
 221 - 233 saponification #
 26 - 38 iodine #

butter (fruit) - usually made of large fruits cooked until soft and the pulp passed through a sieve (0 to $\frac{1}{2}$ lb.sugar/lb.fruit)

butter grade - measures appearance and taste

USDA grades:	Made from:
AA	top quality sweet cream
A	lesser - quality sweet cream
B	sour sweet cream

butter head - a variety of head lettuce

buttermilk - see "churning"

buttons - white cartilagenous area on the ends of the feather bones of young animals

butt tenderloin - ilio-psoas (iliacus and psoas major) muscle; lies ventral to the shaft of the ilium in cross section of sirloin; is the psoas major and psoas minor in pin bone area and lies ventral to the lateral process of lumbar vertebra

butylated hydroxyanisole (BHA) - an antioxidant which needs a synergist to be very effective; it will carry through to the baked product.

butyric acid $\text{CH}_3-(\text{CH}_2)_2-\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$ A 4-carbon saturated acid which may be found in butter

buyers' market - a downward trend.

C - see "carbon"; see "capacitor"

Ca - see "calcium"

cabbage (*Brassica oleracea capitata*) - a vegetable whose leaf is used as food; seed 4-8 oz./acre (150 to 300 feet bed space), spacing 12 in. in row 3 ft. apart

cadmium (Cd) - an element; at. no. 48; at. wt. 112.41; oxidation state +2; electron configuration 2-8-18-18-2 orbit K L M N O

caecum - see "cecum"

café au lait - equal parts of hot coffee and scalded milk

café noir - black coffee

caffeine - $C_8H_{10}N_4O_2$ a stimulant derived from coffee

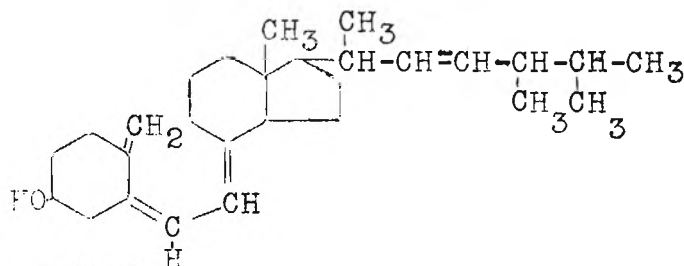
	% in bean	mg./oz. of drink
coffee.....	1	18
tea	2	13
cola (kola)...	1.5	4

cake flour - see "soft-wheat flour"

cala - cured and smoked picnic (lower portion of pork shoulder)

calcareous - contains lime

calciferol - $C_{28}H_{43}OH$ vitamin D_2 which can be produced by the ultraviolet irradiation of ergosterol



calcium (Ca) - an element; at. no. 20; at. wt. 40.08; oxidation state +2; electron configuration 2-8-8-2 orbit K L M N

daily requirements .8 to 2 g.; body function - bone and tooth formation, contraction of muscles, clotting of blood, irritability of nerves; food -

	High	Low
milk & milk products		seed
vegetables		lean meat
egg yolk		

calcium acid phosphate - $Ca(H_2PO_4)_2$ in baking powder, self-rising flour and is same as superphosphate

calcium arsenate - a poisonous insecticide $Ca_3(AsO_4)_2$

calcium carbonate - $CaCO_3$

calcium carbonate equivalent - used in calculating the soil sweetening efficiency; = % $CaCO_3$ + 1.19(% $MgCO_3$)

calcium hypochlorite - $Ca(OCl)_2$ used for chlorination of water; bleaching, and disinfectant; chloride of lime, chlorinated lime, and HTH have a large quantity of this compound

calcium meta-phosphate - $Ca(PO_3)_2$ a fertilizer material; 0-63-0

- calcium pectinate - a pectin material made from citrus or apple sources and can be used as an edible gel coating for meat products
- calcium silicate slag - a liming material that is equal to .8 lbs. of dolomitic limestone per each pound
- calf - young bovine species (cattle), either sex, usually under 12 months old
- calf carcass - produced by bovine animal 3 to 8 months old
- calf knee - knees bent too far to the rear
- californium (Cf) - a rare earth element; at. no. 98; mass number of most stable isotope 249; oxidation state +3; electron configuration 2-8-18-32-28-8-2 orbit K L M N O P Q
- calnitro - a neutral fertilizer material made from 2/3 ammonium nitrate (NH_4NO_3) and 1/3 dolomitic lime, 20.5 - 0 - 0
- Calorie (kilo calorie)(large calorie)(Great)(C) - also see "kilo calorie"; great Calorie = 1,000 calories (c) = 3.968 Btu
4 Calories = 1 gram of protein
4 Calories = 1 gram of carbohydrate
9 Calories = 1 gram of fat
- calorie (gram calorie)(small calorie)(Standard calorie)(c) - heat required to raise the temperature of 1 gram of water from 15 to 16°C.; 1,000 gram calorie = 1 kg C
1 calorie = .001 kilo Calorie
= 4.186×10^7 ergs
= 4.186 joules
= 3.968×10^{-3} Btu
= 3.0874 ft. lbs.
- Camembert - a soft unpressed ripened cheese from France
- | <u>can</u> | size | measure | weight |
|------------|-----------|--------------|---------------|
| | No. 10 | 13 cups | 6 lbs. 10 oz. |
| | No. 5 | 7 cups | 3 lbs. 8 oz. |
| | No. 3 cyl | 5 & 3/4 cups | 3 lbs. 3 oz. |
| | No. 3 | 4 cups | 33 oz. |
| | No. 2 1/2 | 3 1/2 cups | 28 oz. |
| | No. 2 | 2 1/2 cups | 20 oz. |
| | No. 303 | 2 cups | 16 oz. |
| | No. 300 | 1 & 3/4 cups | 15 oz. |
| | 12 oz. | 1 1/2 cups | 12 oz. |
| | No. 1 | 1 & 1/3 cups | 11 oz. |
| | Picnic | 1 1/4 cup | 10 1/2 oz. |
| | 8 oz. | 1 cup | 8 oz. |
- Canadian bacon - pork sirloin muscle that has been cured, placed in an artificial casing and smoked
- canapé - toasted bread topped with appetizers
- cancellated bone tissue - found inside most bones and has the appearance of a sponge
- candle power - illumination power of a standard sperm oil candle; 1 candle power (spherical) = 12.566 lumens; see "foot candle", "lux"
- candy - to cook in sugar or syrup
- cane sugar - see "sucrose"
- cane syrup - see "top syrup"

canned pork - maximum increase in weight is 8% over fresh uncured weight

cannon - live animal area on front legs below knee and above fetlock; on rear legs below hock and above fetlock; carcass - see "shank bone"

can size - see "can"

cantaloupe - species of muskmelon; 50 lbs./bu.; seed 2-3 lbs./acre; spacing - hills 2 ft. apart in 5-foot rows, thin to 2 plants/hill

cap - a natural casing used in the meat trade, from pork caecum

capacitance - property of storing an electrical charge

capacitor - (C) $\left| \begin{array}{c} + \\ - \end{array} \right|$; 2 conductors separated by an insulator

q = quantity of electricity necessary to charge the capacitor in coulomb

$$q = C e_c$$

C = capacitance of capacitor in farad, ratio of charge to voltage

e_c = potential across capacitor

The larger the conductors and the thinner the insulator the higher the capacitance value

capacola - a meat product made from boneless cala butts and seasoned with red pepper pods

caper - (*Capparis spinosa*) unopened bud of the mediterranean shrub (caperbush) used as flavoring in cooking

capillary - (human blood) .0007 in. in diameter

capon - a desexed young male chicken that was castrated when 6 weeks old or implanted with a female sex hormone

capric acid - $\text{CH}_3(\text{CH}_2)_8\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$ a 10 carbon saturated acid found in butter, coconut and palm oil

caproic acid - $\text{CH}_3(\text{CH}_2)_4\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$ a 6 carbon saturated fatty acid found in butter, coconut and palm oil

caprylic acid - $\text{CH}_3(\text{CH}_2)_6\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$ an 8 carbon saturated acid found in butter, coconut and palm oil

capsicum - (*Capsicum*) a classification which includes many essential spices: cayenne pepper, chili pepper, chili powder, hot red papper, paprika, pimiento, tabasco

caramel - a dark brown coloring substance obtained by heating sugar and used to color food; candy

caramelization - sucrose (sugar) heated past the melting point so that it decomposes, gives off water and turns slightly brown

carat - (metric) a unit of weight used for gems (precious stones)

$$\begin{aligned} 1 \text{ carat} &= 200 \text{ milligrams} \\ &= .200 \text{ g. (1/5 gram)} \\ &= 3.0864 \text{ grains} \end{aligned}$$

Part of gold in 24 parts of an alloy

caraway - (*Carum carvi* L.) dried fruit (seed) of the parsley family used as a spice, seed is hard and brown about 3/16 inch in length and is curved and tapered at the ends; not more than 8% total ash; not more than 1.5% HCl insoluble ash

carbamide - see "urea"

carbohydrate equivalent - measures fattening power of a ration;
= % protein (1.9) + % fat (2.5) + % carbohydrate

carbolic acid - see "phenol"

carbon (C) - an element; at. no. 6; at. wt. 12.011

electron configuration 2 - 4 ; oxidation states +2, +4, -4
orbit K L

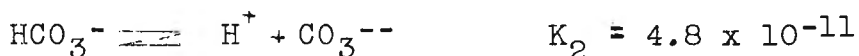
carbonate - CO_3^{--} salt of carbonic acid H_2CO_3

carbonated beverage - super saturated solution of CO_2 and H_2O
under pressure

carbon dioxide - (CO_2) an end product of digestion and is
eliminated from the body through the lungs; from .02 to .04%
of air; see "dry ice" and "carbonated beverage"

carbon disulfide - CS_2 a fumigant

carbonic acid - (H_2CO_3); a weak acid formed by the combination of
 CO_2 and H_2O ; the CO_2 may be removed from H_2O by boiling



carbon monoxide - (CO) deadly gas produced by combustion

carbon tetrachloride - (CCl_4) a polyhaloalkane that is used in
fire extinguishers and as a cleaning solvent

carbonyl group - $\begin{array}{c} -\text{C}- \\ || \\ \text{O} \end{array}$

carboxyl group - $\begin{array}{c} -\text{C}-\text{OH} \\ || \\ \text{O} \end{array}$ found in organic carboxylic acids

carbylamine - (isocyanide) $\text{R}-\text{NC}$; I.U.C. - alkyl group followed by
carbylamine

carcass - the dressed body of a slaughtered animal, offal having
been removed; MID definition - all parts, including viscera,
of a slaughtered animal which are capable of being used as
human food

cardamom (or cardamon) - (Elettaria cardamomum Maton) tiny black
seeds of a plant of the ginger family used for spices; buff
colored pods have been bleached and the dark ones have not;
dried seeds - not more than 8% total ash; not more than 3%
acid insoluble ash

carmine - a brilliant red or purplish coloring substance obtained
from the cochineal (insect) and used to color food and stain
biological specimens; can be decolorized with .1 to 1% HCl

carotene - $\text{C}_{40}\text{H}_{56}$; a yellow pigment found in green plants and
carrots; can be converted by the animal body to vitamin A,
see "beta-carotene"

carotenoid - class of pigments; Ex. - carotene, carrots;
 xanthophyll, yellow corn; lycopene, tomatoes (red)
carpal bone - fore foot bones located above the metacarpal bones
carpet grass - a perennial plant used for lawns
carrot - (*Daucus carota*) a vegetable whose root is used as food;
 1,500 I.U. vitamin A

cascade - a variety of birdsfoot trefoil

casei factor - see "folic acid"

casein - a phosphoprotein found in milk (3%)

Caserta pepperoni - a meat product consisting of 75% pork and 25%
 beef originating in Italy

cashew nut - (*Anacardium occidentale*) a hard shell nut used for
 food and oil

Cashmere - woolen fabric made from hair of Cashmere goat

casing (hog bung) -

grade	width in inches	# of pieces/tierce
export	over 2 & 1/8	400
large prime	1 & 15/16 - 2 & 1/8	500
medium prime	1 & 12/16 - 1 & 15/16	550
special prime	1 & 9/16 - 1 & 12/16	580
small prime	1 & 7/16 - 1 & 9/16	600
skips	1 & 4/16 - 1 & 7/16	700
#1 broken shorts export & large primes	over 1 & 15/16	800
#2 broken shorts medium, special & small primes	1 & 15/16 - 1 & 7/16	1050

casing (natural) - small hog casing
 grade width in m.m.
 extra narrow under 28 mm
 narrow medium 28 - 32 mm
 selected medium 32 - 35 mm
 English medium 35 - 38 mm
 wides 38 - 42 mm
 extra wide over 42 mm

casing (sheep) -

grade	width in m.m.	length of hank
narrow	16 - 18 mm	100 yards
narrow mediums	18 - 20 mm	100 yards
special mediums	20 - 22 mm	100 yards
wide	22 - 24 mm	100 yards
extra wide	24 - 26 mm	100 yards

cassava - a woody South American tropical plant from which starch
 is extracted from the roots; see "tapioca flour"

cassia - (Cinnamomum cassia Blume) dried bark, ground or stick, of cassia tree used as a spice, essential oil is oil of cinnamon or cassia, contains - not more than 5% total ash; not more than 2% acid insoluble ash

castor oil - 0.960 - 0.967 specific gravity
1.479 - 1.481 refractive index (15.5°C.)
175 - 185 saponification number
82 - 90 iodine number
230°C. flash point

castrate - removal of the testicles or sex gland from a male

castration - desired age - calves, 2 weeks to 2 months of age
- pigs, 3 to 4 weeks
- lambs, 1 to 2 weeks

methods - knife - use a fly repellent (Ex. pine tar) and disinfectant around wound

elastrator - rubber rings

emasculatome - clamp

catabolism - release of energy and the burning of materials, biochemical process of degradation which takes place in the body

catalana - a mediterranean class of chickens that lays a white shell egg

catalase - enzyme that breaks down hydrogen peroxide to water and oxygen

catalyst - a substance which speeds up a reaction without undergoing permanent chemical change

catgut - dried colons of sheep and oxen split into threads

cation - a positive ion

caudal - tail

caudal vertebrae - tail bone located to the rear of the sacral vertebrae; number varies with species and individual animals in the same breed; see "vertebrae"

caul fat - a loop of fat that supports the stomach, see "web fat"

cauliflower - (Brassica oleracea) a vegetable whose flower is used for food

caustic lime - a liming material composed of 85% CaO and each pound has the neutralizing equivalent of 1.5 to 1.75 pounds of CaCO₃ (or approximately this quantity of dolomitic limestone)

caviare - heavily salted sturgeon (and other large fish) roe that has matured

cayenne - (Capsicum frutescens L.) pods of the red pepper plant used as seasoning

Cd - see "cadmium"

Ce - see "cerium"

cecum - blind end section of the digestive tract between the small & large intestine; larger size in non-ruminants that utilize forage

celery - (Apium graveolens) a vegetable whose leaf stem is used as food

celery flake - flaked leaves and stalks of celery that have been dehydrated

celery salt - mixture of ground celery seed and salt

celery seed - (Apium graveolens) tiny brown dried fruit (seed)
used as a spice; should not contain more than 10% total ash
and 2% acid insoluble ash

cellophane - a transparent film made of cellulose and coated or
treated with lacquers or polymers, relatively permeable to air
and moisture when wet, less permeable when dry

cellulose - $(C_6H_{10}O_5)_n$ a carbohydrate made up of glucose units
joined in the form of long chains; the links are 1 and 4 like
starch but the linkage to carbon 1 is beta in cellulose and
alpha in starch

celsius (C.) - temperature formerly centigrade

cement - 1 barrel = 4 bags = 376 pounds

centare - one square meter

centi- (one-hundredth)(0.01) prefix for quantities smaller than
the base unit

centigrade (C.) - currently called celsius

$$C. = 5/9 (F. - 32)$$

F. = fahrenheit

$$C. = R (5/4)$$

R. = reamer

$$K. = C + 273.15$$

K. = kelvin

$$F. = (C \times 9/5) + 32$$

Boiling point of water = 100°C.

$$R. = C \times 4/5$$

Freezing point of water = 0°C.

centigram (cg) - a unit of metric weight

$$1 \text{ centigram} = 10 \text{ milligrams (mg)}$$

centiliter (cl) - a unit of metric volume

$$1 \text{ centiliter} = 10 \text{ milliliters}$$

centimeter (cm) - a unit of metric length

$$1 \text{ centimeter} = 10 \text{ millimeters (mm)}$$

$$= 10^{-2} \text{ meters}$$

$$= 10,000 \text{ microns}$$

$$= 1 \times 10^8 \text{ angstrom units}$$

$$= 0.3937 \text{ inch (US)}$$

$$= 0.032808 \text{ feet (US)}$$

$$= 6.2137 \times 10^{-6} \text{ statute U.S. miles}$$

$$2.54 \text{ cm} = 1 \text{ inch}$$

$$30.48 \text{ cm} = 1 \text{ foot}$$

centimeter of mercury - a measure of pressure

$$1 \text{ cm of mercury at } 0^\circ\text{C.} = 0.013158 \text{ atmospheres}$$

$$= 0.446 \text{ feet of water at } 4^\circ\text{C.}$$

$$= 0.013 \text{ kilograms/sq.cm.}$$

$$= 27.845 \text{ pounds/sq. ft.}$$

$$= 0.019337 \text{ pounds/sq. in.}$$

$$= 13.595 \text{ g./sq.cm.}$$

centimeter per second (cm per sec) - a measure of velocity

$$1 \text{ cm per sec} = 0.0328083 \text{ ft. per sec.}$$

$$= 1.9685 \text{ ft. per min.}$$

$$= 0.02237 \text{ miles per hour}$$

$$= 0.03600 \text{ kilometers/hour}$$

$$= 0.6000 \text{ meters/minute}$$

$$= 3.728 \times 10^{-4} \text{ miles/minute}$$

centimeter per second per second - = 0.02237 mile/hr./sec.
= 0.03281 foot/sec./sec.

centrifugal force -

centrifugal force = $0.00001118 (\text{radius in cm})(\text{rpm})^2$
(# of times greater
than gravity)

centrifugal force = $\frac{\text{velocity in ft./sec.}^2}{32.16 \times \text{radius of circle in ft.}}$
(gravity)

centrifugal force = $1.118 (\text{wt. in grams})(\text{radius in cm.})(\text{rpm})^2 10^{-5}$
(grams)

centrifugal force = $\frac{\text{wt. of body in lbs.} \times (\text{velocity in ft/sec})^2}{32.16 \times \text{radius of circle in feet}}$
(pounds)

centriole - a division center of a cell

cephalin - a phospholipid

cereals - dry fruit of grasses

cerebellum - rear portion of the brain concerned with coordination
of movements

cerebroside - see "glycolipin"

cerebrum - the front area of the brain that consists of 2
hemispheres and is responsible for consciousness

cerium (Ce) - a rare earth element; at. no. 58; at. wt. 104.13;
oxidation states +3, +4; electron configuration 2-8-18-19-9-2
orbit K L M N O P

Certified Atlantic - a variety of alfalfa

Certified Buffalo - a variety of alfalfa

Certified Williamsburg - a variety of alfalfa

cervalat (cervelat) - see "summer sausage"

cervical vertebrae - neck bones numbered from front to rear;
7 in all mammals

cesium (Cs) - an element; at. no. 55; at. wt. 132.91;
oxidation state +1; electron configuration 2-8-18-18-8-1
orbit K L M N O P

cevitamic acid - see "ascorbic acid"

Cf - see "californium"

chain (surveyors' or Gunter's) - a measure of length

1 chain = 66 feet
= 100 links (Gunter's)
= 20.117 meters
= 0.0125 mile
= 4 rods
= 22 yards

10 sq. chain = 1 acre

chaldron - dry measure; 36 bushels (US) or 32 bu.(Br.) = 1 chaldron

chamois (chammy) - leather made from the inner layer of sheep skin;
formerly from chamois (antelope)

champagne - see "brut", "dry", and "pink champagne"

chantecler - an American breed of chicken that lays a brown-shell
egg; varieties: white, partridge

chaps - hair or leather leggings worn by cowboys to protect the legs

characteristic - see "logarithm"

Charbray - a cross of French Charolais and Brahman beef cattle
chard - a beet whose leaf and stalk is used as food; also blanched artichoke leaves

Charolais (Charollais) - a French breed of beef cattle

charqui - see "jerked beef"

chasseur - (hunter style) a tomato-wine sauce with mushrooms, peppers, olives and garlic

chateaubriand - thick beef

cheddar cheese grade - U.S. Grades AA

A

B

C

cheese - see "club cheese"; "coldpack cheese"; "coldpack cheese food"; "comminuted cheese"; "natural cheese"; "pasteurized process cheese"; "pasteurized process cheese food"

cheese mite - a pest that feeds on hams and cheese

cheese skipper - see "ham skipper"

chemically pure - chemically pure (c.p.); a designation of a grade of chemical purity that is suitable for routine use; chemical grades according to decreasing purity:

1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

chemise, en - unpeeled boiled potatoes

cherries - storage conditions (fruit of *Prunus* species)

temperature - 31°F.

relative humidity - 90%

freezing point - 24-28°F.

chervil - (*Anthriscus cerefolium* L. Hoffm) a smallish annual herb of the parsley family with delicate white flowers. Its leaves are used whole or ground.

Cheshire - a hard cheese from England

Chester White - a meat type breed of hog originating in Southeastern Pennsylvania from a number of local strains; is solid white with a drooping ear

chestnut - (a) a hard shell nut requiring cooking before eating (*Castanea sativa*); (b) a horney growth on the inside of a horse's legs; (c) Sorrel (reddish brown) color of horses

Cheviot - a medium wool mutton type breed of sheep originating in Scotland; its face, ears, and legs are white and have no wool

chevon - flesh of goats

chewy - characteristic of a food that resists breaking up or dissolving in the mouth

Chi (χ, x) - Greek letter with an English equivalent of ch.

Chicago style - a method of cutting beef; the fore quarter is divided into chuck, rib, shank, brisket, and short plate; the hind quarter is divided into round, rump, loin end, short loin, and flank; the sirloin tip (obtained in the National style of cutting) is left on the loin end in the Chicago style.

chick antidermatitis factor - see "pantothenic acid"

chicken grade - see "poultry grade"

chick's first breath - air space in large end of egg between 2 membranes

chiffonade - shredded vegetables or meat

chile saltpeter - NaNO_3 sodium nitrate

chili con carne - min. - 40% meat (computed on fresh meat wt.); max. - 25% of meat as hearts, cheek meat, head meat or weasand meat; max. - 8% cereal

chili pepper - a spice of the capsicums group ground coarser than paprika

chili powder - contains: chili pepper, cumin, oregano, garlic, salt, and sometimes other spices

chill room - regulation temp. $38 \pm 2^\circ\text{F}$.; tolerance of 10°F . for reasonable time after the entry of fresh food; ideal temp. $30 \pm 2^\circ\text{F}$.

chinch bug - an insect that sucks the sap from corn and other small grains after they have been harvested; control: segregate corn and small grains, dieldrin, toxaphene

chine bone - body of cervical, thoracic, lumbar, and sacral vertebrae

Chi-square (χ^2) - a measure of deviation from a hypothesis;

$$\chi^2 = \sum (f-F)^2/F$$

f = # found in sample

F = # expected by hypothesis

df = total possible classes - 1

Ex - $df = 1$ if 2 categories (Ex - yes and no)

χ^2 of 6.635 or larger there is a 1% possibility of this taking place if the hypothesis is true:

χ^2 of 3.841 (5%)

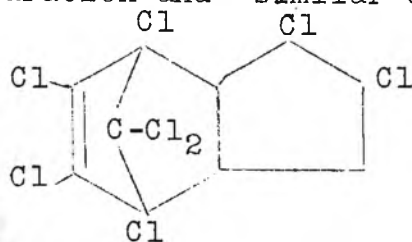
Percentage values cannot be used without returning to a known sample size

chitterling - the cooked small and large intestine of swine

chittlins - see "chitterling"

chive - (Allium schoenoprasum) a member of the onion family; freeze dried leaves used in seasoning

chlordan(e) - an organic poison insecticide of the following configuration and similar compounds

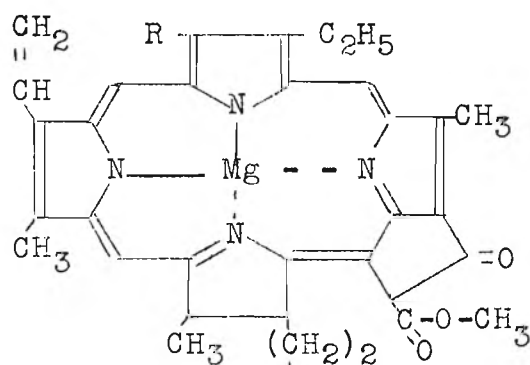


chlorine (Cl) - an element; at. no. 17; at. wt. 35.457; oxidation states +1, +5, +7, -1; electron configuration 2-8-7 orbit K L M

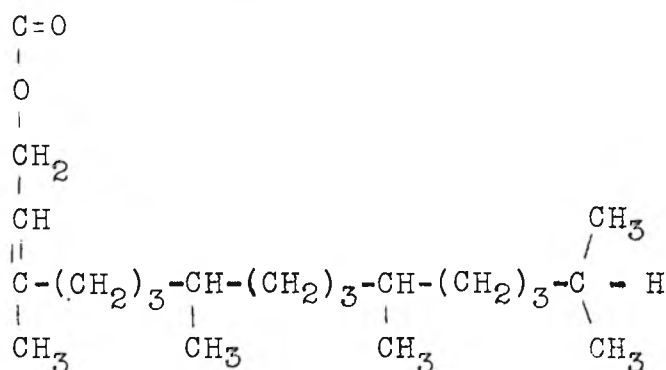
body function - in form of hydrochloric acid, it imparts proper pH to gastric juices

chloroform (CHCl₃) - a polyhaloalkane that has anesthetic properties and is a solvent for fat

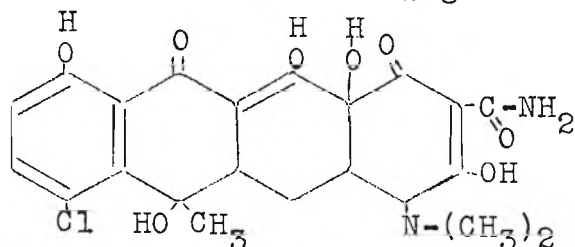
chlorophyll - a green pigment present in all green plants. It is essential for the construction of carbohydrates by the plant



R in chlorophyll a -CH₃
in chlorophyll b -C(=O)-H



chlortetracycline (C₂₂H₂₃ClN₂O₈) - a broad spectrum antibiotic

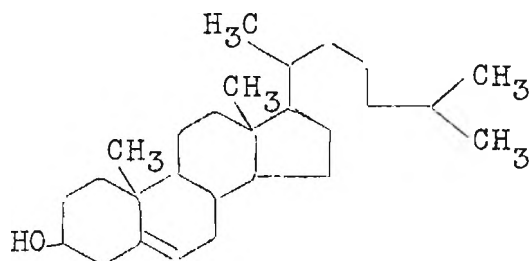


chocolate - is made from a cocoa bean; a seed of the Theobroma cacao tree. The beans are dried, removed from the pod, fermented, pulp is removed, washed, dried and roasted (146-300°C.) The kernels are broken, removed from the shell, heated, ground and this product is called bitter chocolate. Not less than 50% cacao fat; Max. 8% ash on fat free moisture free basis; Max. .4% ash insoluble in HCl on fat free moisture free basis; Max. 7% crude fiber on fat free moisture free basis; See: "instant cocoa mix", "milk chocolate", "semisweet chocolate", "semisweet chocolate pieces", "sweet cooking chocolate", and "unsweetened chocolate"

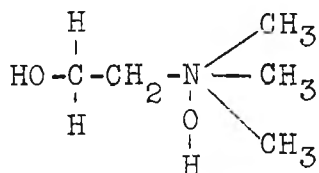
choke - a condition in cattle in which a foreign object is lodged in the throat; also, see "inductor"

cholera (hog) - an infectious and fatal swine disease that can be prevented by vaccination

cholesterol - a sterol that is found in all animal tissues and especially in the brain, egg yolk, cod liver oil, the un-saponifiable fraction of animal fats and gall stones



choline - a water soluble vitamin whose deficiency causes "fatty livers" in rats, damage to kidneys in rats, damage to leg tendons in the chick and reduced egg production in hens; source - synthetic and widely distributed in biological material



chopped beef - max. 20% fat

chopped steak - max. 20% fat

chorizos - a coarsely ground pork sausage seasoned with pimento and red pepper, smoked and air dried

chromate ion - CrO_4^{--}

chrome tanning - making leather from hides using sodium dichromate ($\text{Na}_2\text{Cr}_2\text{O}_7$) as the tanning solution. It is converted to chromic sulfate which combines with the protein of the hide

chromite ion - CrO_2^-

chromium (Cr) - an element; at. no. 24; at. wt. 52.01;

oxidation states +2, +3, +6; electron configuration 2-8-13-1
orbit K L M N

chromoprotein - protein is attached to a color group; Ex. - hemo-globin

chuck - part of fore quarter of beef consisting of the thick area of the first 5 ribs; about 26% of a choice steer carcass

chuck rib roasts - beef roast made from the chuck area (first 5 ribs)

chuck tender - see "scotch tender"

chuffy - very compact and blocky

chunk honey - pieces of honeycomb covered with extracted honey
churning - mechanical agitation of cream so that the fat globules stick together to form butter and are separated from the buttermilk

chyme - the food material that leaves the stomach and enters the small intestine

chymotrypsin - a ^{proteolytic} proteolytic enzyme which attacks native proteins and is found in pancreatic juices in the small intestine. It is secreted in the inactive form called chymotrypsinogen

chymotrypsinogen - inactive form of chymotrypsin and the form in which it is secreted; it is activated by trypsin

CI - see "color index"

cider - fermented or unfermented apple juice

cider vinegar - see "apple (cider) vinegar"

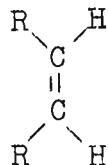
cinnamon - (Cinnamomum cassia Blume or Cinnamomum zeylanicum Nees) a spice that is made from the dried bark of an evergreen tree of the cinnamomum family; may be in ground or stick form; see "cassia"

C.I.P. - cleaned in place

circumference (C) - of a circle $C = D(3.1416)$ $D = \text{diameter}$
 $C = 2R(3.1416)$ $R = \text{radius}$

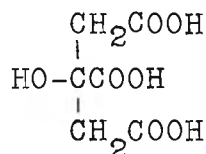
circumference of a circle is 360° or 2π radians

cis -



citrate - Na citrate ($\text{C}_6\text{H}_5\text{Na}_3\text{O}_7 \cdot 2\text{H}_2\text{O}$) combines with Ca and prevents blood from clotting; 600 mg. of Na citrate/100 ml. blood

citric acid - organic acid



citrus - Rutaceae family of plants that includes citron, lemon, lime, orange

city chicken - alternate layers of veal and pork placed on a skewer

Cl - see "chlorine"

claret wine - a dry red table wine

class mark - the center value for a class interval (Ex.: class interval 12.5 to 17.5 - class mark 15)

clay - fine soil that is coherent when wet and hard when dry; a variety of cowpeas

clean cut - head and neck - finely sculptured appearance,
no coarseness
bone - no puffy or meaty joints
cannon or shank - free from coarseness or meatiness

clean wool - see "scoured wool"

clear cut shoulder - (shoulder clod) a beef roast made from muscle
on the fore shank, to the rear of the fore arm bone

clear flour - a grade of white flour which may be made from the
poorer 5 to 60% of all the white flour milled; it is further
subdivided into the following grades:

fancy clear or first clear
first clear or second clear

climax - a variety of lespedeza

cloche, sous - under a bell

clod - deltoideus and infraspinatus muscles of the chuck. They
lie lateral to the scapula and ventral to its spine

clod bone - humerus

clorox - sodium hypochlorite; ($\text{NaClO} \cdot 5\text{H}_2\text{O}$); % available chlorine -
2-6% home use
10-18% industrial use

closed side (beef) - right side

Clostridium botulinum - the bacteria (at least 5 types) that
produce the toxin responsible for the food poisoning known
as botulinum; anaerobic bacteria which produce very heat re-
sistant spores; this is the most serious but rarest type of
food poisoning with from 30 to 65% of the cases ending in
death; it is a gram positive rod; the bacteria should be
heated to 250°F . for at least 24 min. to kill them; also see
"Bacillus botulinus"

clothing wool - wool that is too short to reach the combing grade

clove - (Caryophyllus aromaticus) or (Eugenia caryophyllata Thunb.);
the unopened flower bud of the clove tree (evergreen) is used
for spices; they have a round head and are spike-like in shape
and may be obtained ground or whole; should contain the
following: not more than 5% clove stems
not less than 15% volatile ether extract
not less than 12% quercitannic acid
not more than 10% crude fiber
not more than 7% total ash
not more than .5% acid insoluble ash

club cheese - see "coldpack cheese"

club steak - steaks cut from the rib end of the short loin;
located in front of the t-bone steaks

Cm - see "curium"

cm - see "centimeter"

Co - see "cobalt"

CO₂ - see "carbon dioxide" and "dry ice"

- coal - a mineral containing carbon used as fuel;
anthracite: 1 cubic foot = approx. 53 lbs.
bituminous: 1 cubic foot = approx. 48 lbs.
- coarse hominy - see "hominy grits"
- coastal Bermuda - a variety of Bermuda grass used for pastures
- cob - the fibrous inner portion of the ear of maize from which the kernels have been removed; also, a short legged horse
- cobalt (Co) - an element; at. no. 27; at. wt. 58.94;
oxidation states +2, +3; electron configuration 2-8-15-2
orbit K L M N
- body function - necessary for hemoglobin formation.
- coccarboxylase - see "thiamin pyrophosphate"
- cocci - a subdivision of bacteria indicating their shape resembles that of a sphere (Greek - berry)
- coccygeal vertebrae - see "caudal vertebrae"
- cochin - an asiatic class of chickens that have feathered shanks, yellow skin, long feathering and lay a brown colored egg;
varieties: buff*, partridge*, white*, black* (* indicates there is also bantam varieties)
- cock - see "rooster"
- cockerel - male fowl; see "toms (young)"
- cockle - a shell fish; 20% edible (10-12% protein); also, a weed
- cocoa - (Theobroma cacao); made in much the same manner as chocolate except some of the fat is removed and the final product is ground; less than 8% fat; see "instant cocoa mix"
- cocoa butter - fat from cacao bean
0.950 - 0.075 specific gravity
1.449 - 1.451 refractive index (60°C.)
28 - 33°C. melting point
188 - 202 saponification #
32 - 40 iodine #
- cocoa nibs - broken kernels of the cacao bean
- coconut (cocoanut) - (Cocos nucifera) a hard shell nut
- coconut oil (copra oil) - 0.926 specific gravity
1.439 - 1.443 refractive index (60°C.)
21 - 27°C. melting point
246 - 260 saponification #
8 - 10 iodine #
- cod - the scrotum after removal of testicles on a steer; it usually contains fat; also, see "demersal fish"
- codeine - $C_{18}H_{21}NO_3$ derived from a poppy seed; used for cough control
- cod liver oil - 0.922 - 0.930 specific gravity
1.479 - 1.485 refractive index (15.5°C.)
180 - 190 saponification #
135 - 180 iodine #
400 - 4,000 i.u. vitamin A/g
40 - 400 i.u. vitamin D/g

coefficient of variation (C) - a measure of variation of observations that has been adjusted for sample magnitude so that variation between samples with different magnitude can be compared.

$$C = \frac{s}{\bar{x}} \quad s = \text{estimate of standard deviation } (\sigma)$$

\bar{x} = sample mean

Sometimes expressed as a percentage $\frac{\sigma}{\bar{x}} \cdot 100 = \%$

coenzyme - an organic compound whose presence is required with the enzyme for enzyme activity

coenzyme I (CoI) - see "diphosphopyridine nucleotide"

coenzyme II (CoII) - see "triphosphopyridine nucleotide"

coenzyme R - see "biotin"

coffee - berry or bean of the coffee tree (Coffea arabica) which must be roasted (230 - 250°C.) before using as a drink

coin silver - must be 9/10 pure silver

cold cuts - sliced cold meat and/or cheeses

coldpack cheese - a blend of fresh and aged natural cheese; the flavor is that of natural cheese but the texture is softer

coldpack cheese food - similar to coldpack cheese but also includes other dairy products and sweetening agents and has a higher moisture content

cold soap - (semi-boiled soap) is a soft soap made from tallow and grease using a potash base and glycerin fraction remaining in the soap; it is less harsh than the boiled soap

collagen - connective tissue of meat made up of parallel fibers which can be converted to gelatin by autoclaving

collard - a kale whose leaf is used as food

collective fruits - see "multiple fruit"

colloid - see "dispersed phase"

colloidal phosphate - a fertilizer material; $\text{Ca}_3(\text{PO}_4)_2$
20% total P_2O_5

cologne spirit - see "silent spirit"

Colorados hide - hides branded on rump or side

colorimetric analysis - an optical method of analysis in which concentration is determined by comparing light transmitted (a specific wave length) through known concentrations of the compound with light transmitted through the sample.

color index - dyes are given a color index (CI) number by the Society of Dyers and Colorists and this identifies an individual dye

color wheel - color papers are placed as segments on a disc; by spinning the disc, the colors appear to fuse and form a single color; used as a comparison for food color

colostrum - milk produced for several days after parturition;
it is quite different in composition from normal milk

colt - a young male horse 4 years or under

Columbia - a medium-wool breed of sheep developed in Wyoming
and Idaho by crossing Lincoln rams on Rambouillet ewes;
they are a white face sheep with no horns and their fleece
grades approximately 3/8; also, a variety of trefoil

Columbium - see "niobium"

colza oil - see "rape oil"

comb honey - honey as it comes from the hive in wooden frames

combinations - the number of groupings that can be formed from
objects without regard to order (Ex., n objects taken r at
a time:

$$C_r^n = \frac{n}{|r| (n-r)}$$

combinations of w, x, y, z taken 3 at a time:

$$C_r^n = \frac{1 \times 2 \times 3 \times 4}{(1 \times 2 \times 3)(1)} = 4$$

wxy
xyz
wyz
wxz

sum of all combinations from 1 to n in a group:

$$S_c = 2^n - 1$$

= 2⁴ - 1 = 15

w wxy
x wxz
y wyz
z xyz
wx wxyz
wy
wz see "permutations"
xy
xz
yz

- combing wool - wool that is both long stapled and strong fibered
- commercial grade - see "technical or commercial"
- comminute - reduce to a very small size
- comminuted cheese - see "coldpack cheese"
- common - a variety of lespedeza (Sericea)
- common Bermuda - a variety of Bermuda grass used for lawns
- compact bone - the outer, hard, brittle, white shell of bones
- complete protein - a protein when used alone in the diet is adequate for normal growth
- complexus - triangular muscle in the neck area between the ligamentum nuchae and the cervical vertebrae
- Compositae - a large order of plants including the aster
- compressed yeast - a moist mixture of yeast and cornstarch
- concentrated milk - see "plain condensed milk" and "plain condensed skimmed milk"
- concentrated skimmed milk - see "plain condensed skimmed milk"
- concentration - the amount of solute dissolved in a given amount of solvent
- concord - a variety of grape
- condensed - reduced to denser form by removal of moisture
- condensed milk - see "plain condensed milk"
- condition - meat animals or draft horses - degree of fatness; race horses - fit to race
- conductance (G) - is the reciprocal of resistance
- $$G = \frac{1}{R} \quad R = \text{resistance in ohms}$$
- $$G = \text{in reciprocal ohms}$$
- confectioners' sugar - powdered sugar; fine (XXXX); also means sugar which is extra coarse in size (sometimes called manufacturers' sugar).
- congealing point - see "freezing point"
- conserve - a blend of 2 or more fruits and nut meat in a thick syrup or jelly ($\frac{1}{2}$ to $\frac{3}{4}$ lb. of sugar/lb. fruit)
- consommé - a clear meat soup
- constitutional formula - see "structural formula"
- continental breakfast - menu of: hot or cold cereal, bacon or ham, eggs, toast, butter, jam or marmalade, and beverage
- converted rice - a patented process for transferring some of the B vitamins from the outer layer into the interior before milling
- cooked - see "smoked temperature"
- cooked salad dressing - a thickened sauce containing:
- liquid - water or milk
 - acid - vinegar or acid fruit juice
 - seasoning - sugar, salt, etc.
 - fat - butter, lard
 - thickening agent - flour, starch or eggs

cooking temperatures - meat roast

Meat	Cut	Oven temp.	Meat temp.	Total time (hrs.)	Min./lb.
<u>Beef:</u>					
well done	Standing rib 5-7 lbs.	325°F.	170°F.	2-3/4 - 3 1/4	27-30
medium	"	325°F.	160°F.	2 1/4 - 2-3/4	22-25
rare	"	325°F.	140°F.	2 - 2 1/4	18-20
well done	Rolled rib 5-7 lbs.	325°F.	170°F.	4 1/4 - 5 1/2	48-52
medium	"	325°F.	160°F.	3 1/2 - 4	33-38
rare	"	325°F.	140°F.	3 - 3 1/2	30-32
<u>Lamb:</u>					
shoulder, rolled	4-6 lbs.	325°F.	175°F.	3 - 4	40-45
shoulder	5-7 lbs.	325°F.	175°F.	3 - 3 1/2	30-35
leg	6-7 lbs.	325°F.	175°F.	3 1/4 - 4	30-35
<u>Pork:</u>					
shoulder, rolled	4-6 lbs.	350°F.	185°F.	3 - 4	40-45
shoulder	5 lbs.	350°F.	185°F.	3 - 3-1/3	35-40
1/2-loin	4-5 lbs.	350°F.	185°F.	2 1/2 - 3 1/4	30-35
fresh ham	5-9 lbs.	350°F.	185°F.	3 - 4 1/2	30-35
<u>Pork, cured*</u>					
1/2-ham*	6-8 lbs.	325°F.	130°F.	1 1/4 - 1-3/4	14
ham*	Boned	325°F.	130°F.	Varies with size	12-15
ham*	Canned 8-13 lbs.	325°F.	130°F.	2 - 2 1/4	10-15
<u>Veal:</u>					
rump	4 lbs.	325°F.	175°F.	2-3/4 - 3	40
leg	Whole 6-8 lbs.	325°F.	175°F.	3 1/4 - 4	30-35
1/2-leg	3 lbs.	325°F.	175°F.	2	40
<u>Chicken:</u>	2-3 lbs.	350°F.	185°F.	1 1/4 - 1 1/2	30-40
<u>Turkey:</u>	6-8 lbs.	325°F.	185°F.	3 1/2 - 4	30-35
	8-12 lbs.	325°F.	185°F.	4 - 4 1/2	22-30

* "Cook before eating" hams and picnics should be cooked to meat temp. of 160°F.; this will take approx. 1/3 more cooking time.

coppa picante - square molded cala butts that have been cured and covered with black pepper

copper (Cu) - an element; at. no. 29; at. wt. 63.54;

oxidation states +1, +2; electron configuration 2-8-18-1
orbit K L M N

body function - necessary for utilization of Fe in hemoglobin synthesis;

Food -	high	low
	Meat, liver, fish, cereals	Milk

copra - dried coconut meat

coquille, en - served in a shell

cord - see "wood"

coriander - (Coriandrum sativum L.) seed, whole (1/8-inch in diameter) or ground of a small plant of the parsley family used for spices; color range from white to yellowish brown; not more than 7% total ash; not more than 1.5% acid insoluble ash; approx. 0.5% volatile oil; approx. 13% fatty matter

corium - the second layer of skin containing tissue and lying beneath the epidermis; also a genus of viruses

cork - the bark of an oak tree (Quercus suber)

Size no.	Approx. diam. in mm. of large end of cork	Size no.	Approx. diam. in mm. of large end of cork
000	7 mm	12	28 mm
00	8	13	30
		14	31
0	10		
1	11	15	33
2	12	16	35
		17	36
3	14		
4	15	18	38
5	17	19	39
		20	41
6	19		
7	20	22	44
8	22		
		24	47
9	24		
10	25	26	50
11	27		

corn - annual vegetable (maize) whose seed is used as food; term varies in meaning depending on country:

Country	Meaning
England	Wheat (or cereals)
Scotland	Oats
U.S.A.	Maize (Indian corn)

(cont'd - next page)

cornification - see "keratinization"

corning - the preservation of beef by salting

cornish - an English class of chickens with a yellow skin, pea comb, and lays a brown colored egg; Varieties: Dark*, White*, White laced red*, Buff; (* indicates there is also a bantam variety)

cornmeal - old process - ground corn using entire grain
new process - ground corn with bran and most of germ removed

May be made from either white or yellow corn

corn oil - oil obtained by extraction of the germ of corn
(Zea mays)

0.916 - 0.927 specific gravity

1.475 - 1.477 refractive index (15.5°C.)

187 - 196 saponification #

115 - 124 iodine #

610°F. - flash point

740°F. - ignition point

cornstarch - made from endosperm of corn and used as a thickening agent; also see "corn flour"

corn sugar - is glucose obtained by complete hydrolysis of cornstarch

starch $\xrightarrow{\text{acid}}$ glucose

found naturally in honey, some fruits, and vegetables

corn syrup - a mixture of dextrin, maltose and glucose, produced by a moderate amount of hydrolysis on cornstarch; can be used in meat curing: (a) corn syrup solids
(b) corn syrup
(c) glucose syrup

Total cannot exceed 2% (dry basis) of all ingredients in meat product

coronet - horse's leg at the top of the hoof

correlation (r) -

$$r = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}} = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{\left[\sum X^2 - \frac{(\sum X)^2}{n}\right] \left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}}$$

$$\frac{n\sum XY - \sum X \sum Y}{\sqrt{\left[n\sum X^2 - (\sum X)^2\right] \left[n\sum Y^2 - (\sum Y)^2\right]}}$$

r ranges from -1 to 0 to +1

-1 and +1 are perfect correlations

0 is no correlation

(cont'd on next page)

correlation (cont'd)

t test	$H_0: r=0$	Prob. of greater $ r $ value if
$t = r \sqrt{\frac{n-2}{1-r^2}}$	$n = \#$ of X's or Y's	r were drawn from a normal
		population in which $r = 0$
	$df = n-2$	

Check Levels of Sig. Tables $df = n-2$

Confidence Limits (CL) can be set only by transformation to a quantity which is distributed normally
corrected wine - see "modified wine"

Corriedale - a medium-wool breed of sheep that originated in New Zealand primarily from the crossing of Merino ewes with Lincoln rams; white face with dark nostrils and hooves and has no horns; the wool fleece grade is usually 3/8

cortex - outer portion

cortland - a variety of apples that are in season in September to December; make excellent sauce and good eating and cooking apples

cos - a variety of head lettuce

cosecant - is a trigonometric function

$$\text{cosecant} = \frac{\text{hypotenuse}}{\text{ordinate}}$$

cosine - is a trigonometric function

$$\text{cosine} = \frac{\text{abscissa}}{\text{hypotenuse}}$$

costae - ribs

costal cartilage - rib cartilage on lower ends (opposite ends that are attached to backbones) of ribs

cotangent - is a trigonometric function

$$\text{cotangent} = \frac{\text{abscissa}}{\text{ordinate}}$$

cotswold - a long-wool breed of sheep originating in England

cottage cheese - a soft unripened cheese; see "curd"

cottage roll - boneless cylinder-shaped piece of pork cut from the top of the Boston butt; may be fresh, cured, or cured and smoked

cotted - fibers or fleece badly matted or tangled due to lack of yolk

cotted fleeces - wool that is tangled and will require special processing; characteristic of certain breeds and illness in some breeds

cotton - (Gossypium) an annual plant whose vegetable fiber is composed primarily of cellulose and is used for cloth; seed 30 lbs./bu.; pH 6 - 6.5; 1 bale = 480 lbs.

Approx. nutrients used for:

<u>500 lbs. lint</u>	<u>1000 lbs. seed</u>	<u>1500 lbs. plant</u>	
1.4	36	38	lbs. N
0.5	15	15	lbs. P ₂ O ₅
3	15	27	lbs. K ₂ O

cotton candy - spinning sugar that has been boiled at a high temp.

cottonseed hulls - 0.3 lb ./qt.

cottonseed meal (feed) - 1.5 lbs./qt.

cottonseed meal (fertilizer) - can be used as an agricultural fertilizer material 5.7 - 2.5 - 1.5 or 6.6 - 2.5 - 1.5; acid in nature and would require 0.1 lb. of dolomitic limestone to neutralize each pound applied

cotton seed oil - 0.915 - 0.925 specific gravity
1.473 - 1.476 refractive index (15.5°C.)
191 - 196 saponification #
105 - 115 iodine #

cottonseed stearin - 0.918 - 0.923 specific gravity
26 - 40°C. melting point
194 - 195 saponification #
89 - 103 iodine #

coulomb - approximately 6.24×10^{18} electrons; charge passing a point in one second when the current is one amp; electrical measurement; x ampere times y seconds = xy coulomb

country-cure - see "dry cure"

country hides - hides removed by an unconventional pattern, containing cuts, and handled under various storage conditions

country-style pork sausage - coarsely ground pork sausage that contains 10 to 20% beef; see "pork sausage"

coupling - area on back of quadruped between dorsal vertebrae and pelvis

cover pickle - the pickle in which meat is placed to cure

cow - female of bovine species (cattle) after she has dropped her first calf; gestation period 283 days (range 240-311); duration of heat period - 12-24 hrs.; normal recurrence of heat 18-24 days

cow-hocked - hocks closer together than ankles and rear toes pointed out; hocks bent in on rear view

cowpea-(Vigna sinensis) annual plant used for hay; seed 60 lbs./bu.; pH - 5.5; cut - first pods have matured; Varieties: black, brabham, clay, iron, whipporwill

cowpox - a contagious cattle disease in which the udder and teats redden and eruption appears; this area is surrounded by purplish skin; when given to man, protects against smallpox

cozymase - see "diphosphopyridine nucleotide"

c.p. - see "chemically pure"

cps - cycles per second

Cr - see "chromium"

crab - a shell fish; 50% edible (average 20% protein)

crab apple - a species of apple that makes good jam and jellies

cracked - particle size reduced by breaking and crushing

cracker - a dry food made from flour and water

cracklings - the residue left from rendered pork fat that has had the lard extracted

cramp bone - see "patella"

crampy - raising rear foot with a jerk

cranberries - a tart acid red berry

Storage conditions

temperature 36°F.

relative humidity 90%

freezing point 27°F.

cranial - head

cream - fat of milk; min. 18% milk fat; thin or coffee cream 18-20% fat; thick or whipping cream 35-40% fat

cream cheese - a soft unripened cheese

cream nut - see "Brazil nut"

cream of tartar - acid salt of tartaric acid, $\text{KHC}_4\text{H}_4\text{O}_6$

(potassium acid (hydrogen) tartrate); see "baking powder"

creosote - (coal tar) made from bituminous coal; used to treat wood for protection against rot and worms; see "fence post treatment"; wood creosote and not cold tar creosote is usually used for medical purposes

crêpe - thin pancakes with fruit and flaming liqueur sauce

cross - several species of vegetables (family - cruciferae) whose leaf is used as food

crest - top of neck of male animal; comb on the head of a bird

cribber - animal that clamps teeth on something and "sucks wind"

crimp - waves in wool fiber

crimson clover - (Italian) (*Trifolium incarnatum*) annual plant used for hay and pasture; seed 60 lbs./bu; seed 20-25 lbs./acre; pH 6.0; approx. nutrients used for one ton of hay:

65 lbs. N

14 lbs. P_2O_5

60 lbs. K_2O

croissant - a breakfast roll that is crescent shaped

crop - beef animal - from topline to $\frac{1}{2}$ -way down side and just behind upper half of shoulder; first stomach of a bird; riding whip; cut or trim

- cross-bred - an animal whose sire and dam come from different breeds
- cross firing - hitting a front foot with an opposite hind foot
- cross rib roast - see "arm roast"
- crotalaria - several species of an annual green manure crop; seed 60 lbs./bu.; use 20 lbs./acre; pH - 6; crotalaria seed may injure livestock
- croup - on horse, between hips and tailhead; called rump on other species of farm livestock
- crouton - a cube of dry toasted bread
- crow hops - a mild bucking motion
- crown roast - a roast made from an unsplit rib rack, the back-bone is removed, opposite end ribs tied together and the tip of the ribs are frenched
- crucibles - platinum or porcelain containers that can stand high heat and they are used in chemical analysis
- cruciferae - mustard watercress, cabbage, and radish family
- crude fat - see "fat analysis"
- crude fiber analysis - is an attempt to measure the non-digestible carbohydrate material; the sample is freed of fat, boiled in weak acid and then in weak alkali; the residue thus contains crude fiber and ash and thus the loss in weight by ashing is reported as crude fiber
- crude oil - used as an insecticide for hogs
- crude protein determination - see "Kjeldahl determination"
- crustacean - a class of shellfish that have a segmented, crust-like shell; Ex. - shrimp, lobster, and crabs
- cryolite - Na_3AlF_6 an inorganic insecticide
- cryovac - a trademark of Dewey & Almy Chemical Co.; a vinylidene chloride - vinyl chloride film; it can be heat shrunk
- cryptorchidism - retention of one or both of the testes within the abdomen
- crystallized honey - honey that has naturally or been made to harden (crystal formed)
- Cs - see "cesium"
- Cu - see "copper"
- cube steak - a thin slice of meat that has been passed through a cubing machine

cubic centimeter (cc)(cm³)(cu.cm.) - a measure of volume

1 cc = 0.999972 milliliter (ml)
 = 0.27051 dram (U.S. liquid)
 = 0.0610234 cubic inch (U.S.)
 = 0.0338 ounce (U.S. fluid)
 = 0.0021 pint (U.S. liquid)
 = 0.0011 quart (U.S. liquid)
 = 2.6417 x 10⁻⁴ gallon (U.S.)
 = 2.1997 x 10⁻⁴ gallon (Imperial)
 = 3.5314 x 10⁻⁵ cubic foot (U.S.)
 = 2.83776 x 10⁻⁵ bushel (U.S.)
 = 1.3079 x 10⁻⁶ cubic yard (U.S.)

cubic decimeter (dm³) - a measure of volume

1 dm³ = 1000.0 cubic centimeters (cc)
 = 61.0234 cubic inches (cu.in.)
 = 1.05668 liquid quarts (l.qt.)
 = 0.99997 liter (l.)
 = 0.90808 U.S. dry quart (d.qt.)
 = 0.264178 U.S. liquid gallon (l.gal.)
 = 0.22702 U.S. dry gallon (d.gal.)
 = 0.035314 cubic foot (cu.ft.)
 = 0.02838 U.S. bushel (bu.)
 = 0.001308 cubic yard (cu.yd.)

cubic feet (cu.ft.)(ft³)(British) - a measure of volume

1 cu.ft.(Br.) = 2.831677 x 10⁴ cubic centimeters (cu.cm.)

cubic feet (cu.ft.)(ft³)(U.S.) - a measure of volume

1 cu.ft.(U.S.) = 28317.016 cubic centimeters (cm³)
 = 2.8316 x 10⁴ milliliters (ml.)
 = 7660.60 drams (U.S. fl.)
 = 1,728 cubic inches (cu.in.)
 = 997.37 ounces (Br.fl.)
 = 957.568 ounces (U.S. fl.)
 = 62.427 pounds of H₂O at 4°C.
 = 59.844 pints (U.S. liquid)
 = 29.9221 liquid quarts (l.qt.)(U.S.)
 = 28.3170 cubic decimeters (dm³)
 = 28.31625 liters (l.)
 = 25.7140 dry quarts (d.qt.)(U.S.)

(cont'd on next page)

cubic feet (U.S.) (cont'd)

1 cu.ft.(U.S.)	=	7.48055 liquid gallons (l.gal.)(U.S.)
	=	6.42851 dry gallons (d.gal.)(U.S.)
	=	6.229 gallons (Br.)
	=	0.80357 bushel (bu.)(U.S.)(approx. 4/5 bu.)
	=	0.23743 barrel (U.S.)
	=	0.118739 hogshead (U.S.)
	=	0.03704 cubic yard (cu.yd.)
	=	0.02831701 cubic meter (m ³)
27 cu.ft. (U.S.)	=	1 cubic yard (cu.yd.)

cubic feet per minute (cfm) - a measure of flow

1 cfm	=	472.0 cubic centimeters per second (cc/sec.)
	=	0.1247 gallon per second (gal/sec.)

cubic inch (cu.in.)(in³)(British) - a measure of volume

1 cu.in.(Br.)	=	16.3870253 cubic centimeters (cu.cm.)
	=	0.003606 gallon (Br.)

cubic inch (cu.in.)(in³)(U.S.) - a measure of volume

1 cu.in.(U.S.)	=	276.842 minims (min.)(Br.)
	=	256.976 minims (min.)(U.S.)
	=	16.387162 cubic centimeters (cm ³)
	=	16.3868 milliliters (ml.)
	=	4.4329 drams (U.S. fl.)
	=	0.57651 ounce (Br. fl.)
	=	0.5541 ounce (U.S. fl.)
	=	0.01732 liquid quart (l.qt.)(U.S.)
	=	0.01639 cubic decimeter (dm ³)
	=	0.0163868 liter (l.)
	=	0.014881 dry quart (d.qt.)(U.S.)
	=	0.004329 liquid gallon (l.gal.)(U.S.)
	=	0.003720 dry gallon (d.gal.)(U.S.)
	=	3.606 x 10 ⁻³ gallon (Br.)
	=	0.000578704 cubic foot (cu.ft.)
	=	0.0004650 bushel (bu.)(U.S.)
	=	1.37429 x 10 ⁻⁴ barrel
	=	0.00002143347 cubic yard (cu.yd.)
	=	1.639 x 10 ⁻⁵ cubic meter (m ³)
231 cu.in.(U.S.)	=	1 liquid gallon (l.gal.)(U.S.)
1728 cu.in.(U.S.)	=	1 cubic foot (cu.ft.)
2150.40 cu.in. "	=	1 bushel (bu.)

cubic meter (cu.m.)(m³) - a measure of volume

1 cubic meter = 61023.38 cubic inches(U.S.)
 = 999.973 liters (l.)
 = 264.173 gallons (U.S. liquid)
 = 219.9 gallons (Br.)
 = 35.31477 cubic feet (Br.)
 = 35.3144 cubic feet (U.S.)
 = 28.3776 bushels (U.S.)
 = 1.307954 cubic yards (Br.)
 = 1.3079428 cubic yards (U.S.)

cubic millimeter (mm³) - a measure of volume

1 cubic millimeter = 0.000061023 cubic inch (cu.in.)
 = 1×10^{-9} cubic meter (cu.m.)

cubic yard (cu.yd.)(yd³)(U.S.) - a measure of volume

1 cu.yd. = 7.646×10^5 cubic centimeters (cu.cm.)
 = 46,656 cubic inches (cu.in.)
 = 807.896 U.S. liquid quarts (l.qt.)(U.S.)
 = 764.559 cubic decimeters (dm³)
 = 764.54 liters (l.)
 = 694.279 U.S. dry quarts (d.qt.)
 = 201.974 U.S. liquid gallons (l.gal.)(U.S.)
 = 173.570 U.S. dry gallons (d.gal.)
 = 168.17 gallons (Br.)
 = 27 cubic feet (cu.ft.)
 = 21.6962 U.S. bushels (bu.)
 = 0.764559 cubic meter (cu.m.)

cucumber - (Cucumis sativus) a vegetable whose fruit is used as food; 48 lbs./bu.; seed 2-3 lbs./acre; spacing - one plant per 12 in. in 6-foot rows

cud - see "bolus"

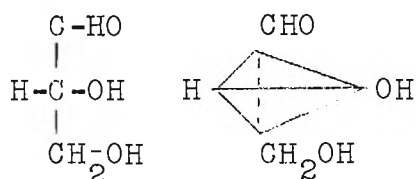
cuissot de chevreuil rôti - roast venison that has been marinated in wine

cultured pearl - made by inserting foreign material in an oyster and allowing it to deposit a coating called nacre on the material

cumberland - a cold meat sauce of orange and lemon juice and peel, port wine and red currant jelly; also, a variety of red clover

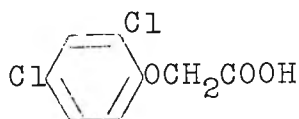
cumin seed - (cummin)(comino seed)(Cuminum cyminum L.) small (1/8 - 1/4-inch) dried seed from a mediterranean plant used as spice; both whole or ground form; used in making curry powder and flavoring cordials; not more than 9.5% total ash; not more than 1.5% HCl insoluble ash; and not more than 5% harmless foreign matter

D - designates configuration about an asymmetric carbon (not optical rotation) corresponding to that of levo-glyceraldehyde



glucose - both D&L
 natural amino acids - L
 synthetic amino acids - DL

2,4-D - organic herbicide



d (+) - dextrorotatory; rotation of polarized light to the right
Dairy Herd Improvement Association (DHIA) - an association that

will assist dairymen in testing the production of a herd
Dallis grass - (Paspalum dilatatum) a perennial bunch type grass
 used for pasture; seed - 15 lbs./bu., 12-15 lbs./acre;
 soil pH 5 - 5.6

dam - female parent

dandelion - (Leontodon taraxacum) a vegetable whose leaf is
 used as food

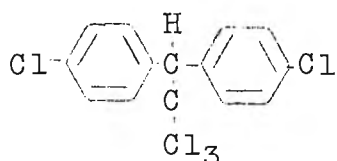
Danish Landrace - see "Landrace"

date - (Phoenix dactylifera) a fruit; 86% edible

Davie - a variety of barley

DDD - see "TDE"

DDT - a contact chlorinated organic insecticide which is
 poisonous if ingested or absorbed



dichlorodiphenyltrichloroethane

deacon skins - skins from bob veal

dead market - a downward trend

dead wool - wool taken from sheep shortly after death

deamination - removal of an amino (-NH₂) group from a compound

decalcifying solution - remove calcareous matter

1 part -- nitric acid

9 parts -- 70% alcohol

deci- (one-tenth)(0.1) - prefix for quantities smaller than the
 base unit

decigram (dg) - a unit of metric weight

1 decigram = 0.1 gram

= 1.54324 grains

= 10 centigrams (cg)

= 100 milligrams (mg)

deciliter (dl) - a unit of metric volume

1 deciliter = 0.1 liter
 = 3.3815 ounces (U.S. fluid)
 = 10 centiliters
 = 100 milliliters
 = 100.003 cc

decimal reduction time (D)(sometimes - Z) - time required in minutes to kill 90% of the population at a given temperature

decimeter (dm) - a linear measure

1 decimeter = 0.1 meter
 = 10 centimeters
 = 3.937 inches (U.S.)
 = 100 millimeters

defatted soy flour - the primary flour made from soybean;

chemical extraction of the fat has reduced it to less than 1%; protein 52-55%; crude fiber 2.5%; ash 6%

degree (deg)($^{\circ}$) - a measurement used for angles

1 degree = 0.0175 radian
 = 60 minutes
 = 3600 seconds
 circle = 360 degrees

degrees of freedom - number of unrestricted variables

degrees per second (angular) -

1 degree per second = 0.0175 radian/sec.
 = 0.167 revolution/min.
 = 2.778×10^{-3} revolution/sec.

dehairing - removing hair from hides; solution - 8 pounds of dehydrated lime in 4 gal. of water

dehorning - age (preferable) - 1 week to 2 months; methods:

(1) chemicals - 1 to 3 weeks old; clip hair and rough skin until irritated; apply ring of vaseline around budding horn; apply caustic (stick, paste, or liquid); caution - caustic will burn -- keep off of body (2) electric - 2 weeks to 3 months (3) mechanical - use fly repellent (Ex., pine tar)

dehydrate - removal of free water by thermal means

dehydrated food - food dried in artificially heated and mechanically circulated air

dehydrogenase - an enzyme which can oxidize a substrate by removal of hydrogen

dehydrogenation - (oxidation) removal of hydrogen from a compound

deka- (ten)(10) - prefix for quantities larger than the base unit

dekagram (dkg) - a unit of metric weight

1 dekagram = 10 grams

dekaliter (dkl) - a unit of metric volume

1 dekaliter = 10 liters

Delaine Merino - see "Merino - C type"

Delaware - a variety of grape; an American class of single comb chicken that lays a dark shell egg; color - white to white and black bars

Delicious - see "Red Delicious" and "Golden Delicious"

Delta (Δ, δ) - greek letter with an English equivalent of d

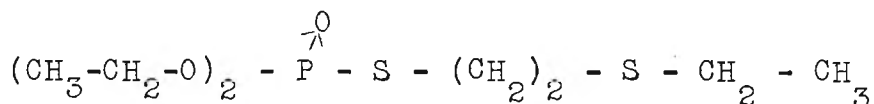
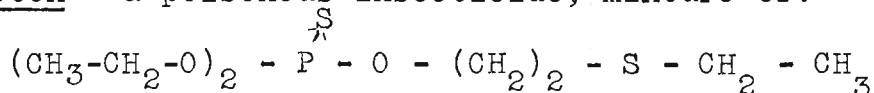
deltoideus - a muscle of the chuck filling the angle between the scapula and the humerus; it lies lateral to the triceps; attaches to the upper part of the humerus

demand good - buyers actively buying at present prices

demand slow - buyers are not active

demersal fish (white fish) - lives on the sea bottom; 40% edible portion; average analysis of the edible portion - 16% protein, most are less than 1% fat (halibut 4%), 80% water, 80 cal./100 g.; Example of types - bream, cod, dogfish, flounder, haddock, halibut, sole, whiting

demeton - a poisonous insecticide; mixture of:



demi-pension - hotel plus continental breakfast and either lunch or dinner

demitasse - a small ($\frac{1}{2}$ cup) of black coffee

demoralized market - see "market slump"

denaturation - a change in protein which makes it less soluble in certain salt solutions

denature - modify; Ex., alcohol - addition of methyl violet, pyridine, methanol or acetone so it cannot be consumed

densimetric analysis - determination of concentration by determination of density

density - is the weight (in vacuum) per unit volume, the temperature is usually given also

$$\text{density} = \frac{\text{weight}}{\text{volume}}$$

deoxyribonucleic acid - (DNA) a nucleic acid containing deoxyribose

desiccator - a container which contains a desiccating agent for maintaining a dry (or constant humidity) atmosphere

destructively distilled wood turpentine - wood turpentine made from destructive distillation of wood

deuterium (H^2)(D) - heavy hydrogen, at.wt. 2.0147

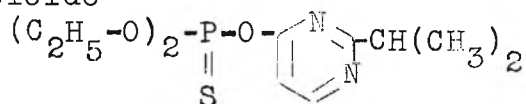
deviations ($x_1, x_2 \dots x_n$) - individual variations from the sample

$$\text{mean; Ex.: } x_1 = X_1 - \bar{x} \quad X_1 = \text{observation \#1}$$

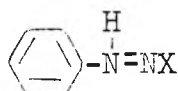
$$\bar{x} = \text{sample mean}$$

$$\sum x = 0$$

- Devon - a dual purpose type of cattle; red in color
- dewclaw - in cattle, sheep and swine - horny growth at the rear of the pastern
- dewlap - loose skin in brisket and neck of cattle
- dextrin(e) - $(C_6H_{10}O_5)_x$ intermediate product in the hydrolysis of starch to maltose, made up of glucose units
- dextro - right
- dextrorotatory (d)(+) - rotation of polarized light to the right
- dextrose - see "glucose" and "corn sugar"
- DHIA - see "Dairy Herd Improvement Association"
- di- - twice
- di-acetate (sodium and calcium) - inhibits mold; $CH_3COONa \cdot CH_3COOH$
- diacetyl - flavoring agent in butter; $CH_3CO \cdot COCH_3$
- dialysis - separation of molecules by difference in rate of diffusion through a membrane
- α, δ -diamino-caproic acid - see "lysine"
- diaphragm - a muscle and connective tissue sheet that separates the thoracic from the abdomen section of the body
- diastole - muscle expansion
- diazinon - insecticide

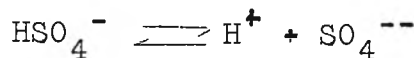
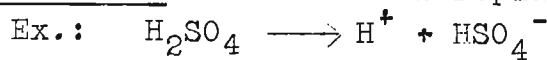


diazonium compound -



X = inorganic group

dibasic acid - acid with 2 replaceable hydrogens

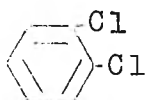


dicalcium phosphate - a neutral fertilizer material; 0-40-0; also a good source of calcium and phosphorus; low in fluorine (toxic); $CaHPO_4 \cdot 2H_2O$

dice - cut into small pieces

dichlorobenzene - a chlorinated organic insecticide

ortho



para



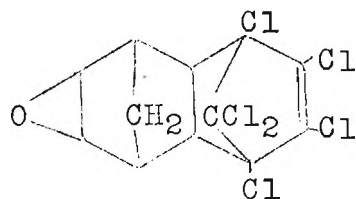
dichromate ion - $\text{Cr}_2\text{O}_7^{--}$

dicoumarol (dicumarol) - a substance found in spoiled sweetclover that increases the clotting time of blood

dicumarol - see "dicoumarol"

dicysteine - see "cystine"

dieldrin - a poisonous chlorinated organic insecticide



dielectric constant -

dielectric constant = $\frac{\text{Electrical capacity of a condenser when the substance is between the plates}}{\text{Electrical capacity of a condenser when there is a vacuum between the plates}}$
(of a substance)

The dielectric constant measures the distance between charges in a molecule and is decreased with increasing temperature; see "polar" and "non-polar"

dielectric heating - heating by establishing a high-frequency alternating electric field within a material (electrical nonconductor)

-diene - I.U.C. ending for alkadiene

digester - a pressure cooker

digester tankage - see "meat meal tankage"

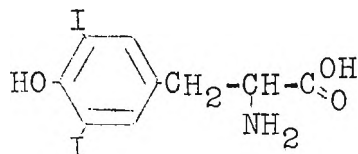
digester tankage with bone - see "meat meal tankage"

digestibility - percent of food absorbed into bloodstream

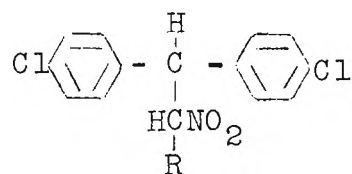
diglyceride - glycerol esterified with two molecules of an acid

dihydrogenphosphate group - $-\text{O}-\text{P}(\rightarrow\text{O})-(\text{OH})_2$

diiodotyrosine - an iodine containing amino acid



dilan - a chlorinated organic insecticide



R = C_2H_5 --- 3 parts

R = CH_3 ---- 1 part

dill - (Anethum graveolens L.) small oval-shaped tan seeds,
leaves and stems of a shrub used in seasoning

dill weed - leaves of dill plant

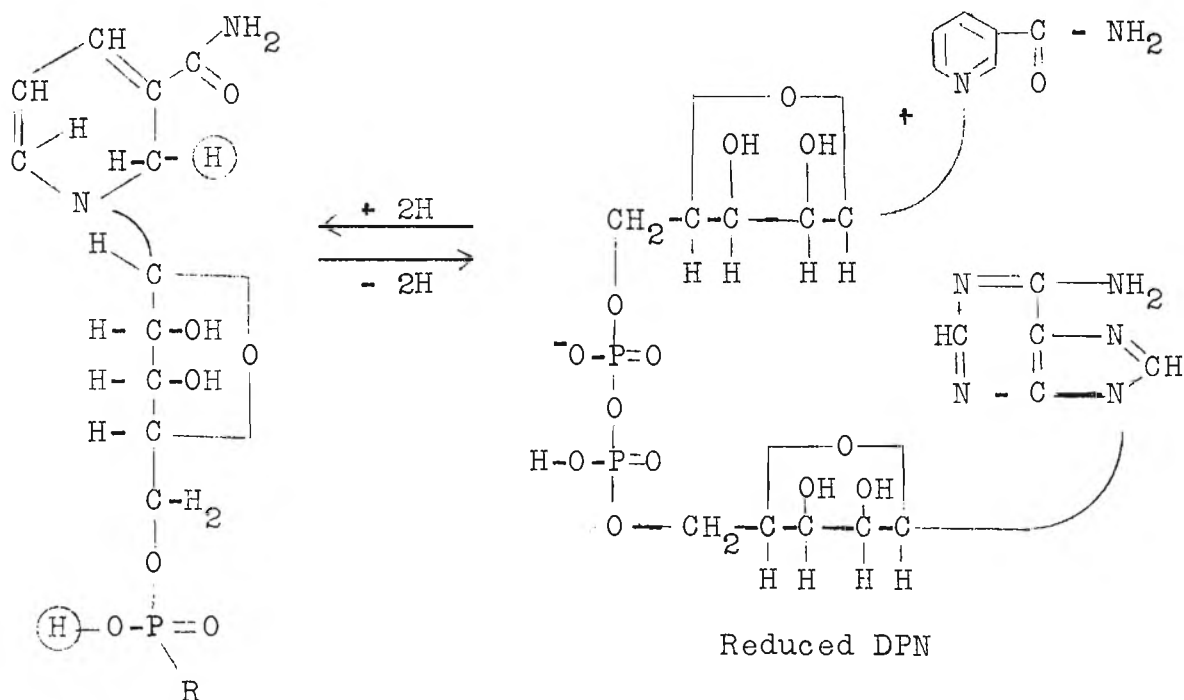
diode - an electrical component that has a much higher re-
sistance to current passage in one direction than in the other

diolefins - see "alkadiene"

-dionic - I.U.C. ending for a diacid

diphenyl - used for treatment of mold in fruit

diphosphopyridine nucleotide (DPN)(coenzyme I) - is a coenzyme
which functions in several dehydrogenation reactions; it
has the ability to take on and give up H as shown in its
formula:



Oxidized DPN

diphosphothiamin - see "thiamin pyrophosphate"

disinfection - destruction of germs

dispersed phase (colloid) - the finely divided particles of a
heterogeneous system which remain in continued suspension

dispersing medium - the liquid of a heterogeneous system in
which colloid particles are held in continuous suspension

dissection - systematically cutting

dissociation constant (K_A) -

$$K_A = \frac{(H^+)(\text{anion})}{(\text{undissoc. acid})} \quad \text{acid} \rightleftharpoons H^+ + Ac^-$$

	K_A
dichloroacetic acid	5×10^{-2}
chloroacetic	1.5×10^{-3}
formic	2.1×10^{-4}
acetic	1.8×10^{-5}
carbonic (first H)	1×10^{-7}
(second H)	5×10^{-11}
water	1×10^{-16}

dissolve - causing a solid to go into a liquid

distal - point farther away, remote

distillate - condensed vapor of distillation

distillation - a liquid is converted to a vapor by boiling and is then condensed

distilled vinegar - fermentation of dilute distilled alcohol;

Min.: 4% acetic acid

distillers grain - 0.6 lb./qt.

distillers' soluble - dried liquor that is left from whiskey after distilling the spirit

ditali lisci - see "macaroni"

ditali rigati - see "macaroni"

di- β -thiolalanine - see "cystine"

DNA - deoxyribonucleic acid

do - see "mean lethal dose"

dock - part of tail left on an animal after clipping or cutting; sometimes is region near tail or base of the tail

docking - removing the tail of an animal; methods include:

elastator, knife or hot iron; best age for sheep - 1 to 2 weeks old, 1 inch from body

Doddies - early Scotch black polled cattle

dog fall - a steer who has fallen with its feet under it

dogfish - (rock salmon) see "demersal fish"

dolomite - when 40% or more of the neutralizing power of limestone is magnesium carbonate; see "limestone"

dolomitic limestone (ground) - a liming material composed of 52% $CaCO_3$ and 42% $MgCO_3$ (must be 10-39.9% neutralizing value for dolomitic) and each pound has the neutralizing equivalent of 0.95 to 1.08 pounds of $CaCO_3$; also see "limestone" and "agricultural limestone"

domestics sausage - sausages that originated in this country or are now made in large quantities in this country

Dominique - an American class of chicken with a rose comb and lays a brown shell egg; color - bluish slate with light and dark bars, undercolor is slate

donkey - an ass or mule

Dorking - an English class of chickens with white skin, 5 toes and lays a white shell egg; Varieties: white, silver-gray, colored

dorman - a variety of soybean

dorsal - back

Dorset - a medium-wool, mutton type, breed of sheep originating in southern England; a white face breed of sheep with both sexes having horns; this breed of sheep can lamb at almost any season of the year

double bone sirloin (flat bone) - a sirloin steak found in the loin end wholesale cut; it is located between the round bone sirloin and the pin bone sirloin; in retail cuts, one of the bones is usually removed

Double Standard Polled Hereford - hornless Hereford cattle that originated from registered Hereford stock

Double Standard Polled Shorthorn - polled Shorthorn originating from registered Shorthorn stock

double superphosphate - a neutral fertilizer material

$\text{Ca}(\text{H}_2\text{PO}_4)_2$ 0-46-0; it is superphosphate which has had the gypsum removed

Down breeds (sheep) - Hampshire; Oxford; Shropshire; Southdown

downward trend - prices are lower than for previous period

DPN - see "diphosphopyridine nucleotide"

drachm (British) - see "dram (troy)" - for weight;

for volume: 1 drachm (Br.) = 60 minims (Br.)
= 3.55 ml.

dragées de Verdun - almonds coated with sugar

dram (apothecaries or troy)(dr.) - a measure of weight used for weighing gold, silver and jewels

1 dram = 3.888×10^3 milligrams
= 60 grains
= 3.8879351 grams
= 3 scruples (Apoth.)
= 2.5 pennyweights
= 2.194286 drams (avoirdupois)
= 0.1371429 ounce (avoir)
= 0.1250 ounce (troy)(ap.)
= 1.0416667×10^{-2} pound (troy)(ap.)
= 3.888×10^{-3} kilogram
= 8.571429×10^{-3} pound (avoir)
= 4.284×10^{-6} tons (short)
= 3.826×10^{-6} tons (long)

dram (avoirdupois)(dr.) - a measure of weight

1 dram = 1.77184×10^3 milligrams
 = 27.34375 grains
 = 1.7718454 grams
 = 1.3671875 scruples (Apoth.)
 = 1.139323 pennyweights
 = 0.4557292 dram (apothecaries or troy)
 = 0.0625 ounce (avoirdupois)
 = 0.056966146 ounce (troy)(ap.)
 = 4.7471788×10^{-3} pound (troy)(ap.)
 = 0.00390625 pound (avoirdupois)
 = 1.772×10^{-3} kilogram
 = 1.953×10^{-6} ton (short)
 = 1.744×10^{-6} ton (long)

dram (U.S. fluid)(Apoth.) - a liquid measure

1 dram = 62.451 minims (Br.)
 = 60 minims (U.S.)
 = 3.6967 cubic centimeters
 = 3.6966 ml.
 = 0.22559 cu. in.
 = 0.13011 ounce (Br. fl.)
 = 0.125 ounce (fluid)
 = 0.0078125 pint (liquid,U.S.)
 = 3.6966×10^{-3} liters
 = 9.7656×10^{-4} gallon (U.S.)
 = 8.13165×10^{-4} gallon (Br.)
 = 1.3054×10^{-4} cu.ft.
 = 3.1×10^{-5} barrel (U.S.)

drawn poultry - dressed poultry which has had the entrails, head and feet removed

dredge - to sprinkle or coat

dressing percentage - percent of live weight that is represented by chilled carcass weight;

$$\text{dressing percentage} = \frac{\text{chilled carcass wt.}}{\text{live wt.}} \times 100$$

$$\text{carcass wt.} = \text{live wt.} \times \text{dressing percentage}$$

$$\text{live wt.} = \frac{\text{carcass wt.}}{\text{dressing percentage}}$$

$$\text{carcass value per hundred wt. (cwt)} = \frac{\text{price per hundred wt. (live)}}{\text{dressing percentage}}$$

(continued on next page)

dressing percentage (cont'd)

live value (cwt) = carcass value (cwt) X dressing percentage

<u>Cattle</u>		<u>Hogs</u>	<u>Sheep</u>	
Prime	60-67%	(head & leaf	ewes	40-60%
Choice	58-62%	fat on)		
Good	52-59%		fat lambs	48-52%
Commercial	45-56%	74-84%		
Utility	47-53%			
Cutter & Canner	38-47%			

See "poultry dressing percentage"

dried beef (beef hams) - beef is dried or sweet pickle-cured with salt, sugar and saltpeter and then smoked and allowed to dry; meat generally used - inside, outside, and knuckles of round; cure: 79.8% by wt. water
 14% salt
 6% sugar
 0.2% sodium nitrate } → pump to 5% of wt.

also see "corned beef"

dried foods - see "sun dried food"

dried milk - see "binder"

dried skim milk - not more than $1\frac{1}{2}\%$ milk fat; not more than 5% moisture

dried whole milk - 26% milk fat; not more than 5% moisture

drierite (CaSO_4) - a desiccant used to keep the atmosphere dry

drift - weight loss of cattle off feed prior to slaughter

dropped fur - see "let-out fur"

drug store wrap - a single thickness of paper is placed under an object; the ends of the paper that go around the sides of the object are brought together on top; they are then folded in $\frac{1}{2}$ -inch folds till you have used the paper down to the object; the ends are then folded into a triangle; the tip of the triangle is then folded under; next, the entire end is folded under smooth and fastened.

drupe - a subdivision of simple fruit; it has a thick ovary wall that has a skin, a fleshy central portion, and a hard portion covering the seed; Examples - plum, cherry, peach, prune, date and olive

dry champagne - a dry, yet a trace of sweetness, wine with a clean flavor

dry cure - a curing procedure in which the dry curing ingredients are rubbed on the meat; many variations in curing ingredients are used; (most widely used formula is 8 lbs. salt, 3 lbs. sugar, 3 oz. saltpeter); ham - 1 oz. cure/lbs. meat, 3 rubbings, 2 days/lb. in cure; bacon - 1 oz. cure/lbs. meat, 2 rubbings, 7 days/inch in cure

dry heat cooking - a method of cooking tender meat by surrounding it with dry air; it includes broiling, panbroiling and roasting

dry ice - compressed carbon dioxide (CO₂) -110°F. (-79°C.)

dry-processed lard - lard rendered in a steam jacket tank under vacuum

dry salt cure - when only salt is rubbed on meat and fat products to cure them, 7 to 10 lbs. salt/100 lbs. meat

dry sugar cure - see "dry cure"

dry wine - all the sugar that can be perceived by taste has been fermented

In 100 cc (20°C.):

less than 1 g. sugar

not less than 0.16 g. ash in red dry wine

not less than 0.13 g. ash in white dry wine

not less than 1.6 g. sugar free grape solids in red dry wine

not less than 1.4 g. sugar free grape solids in white dry wine

dry yeast - yeast mixed with cornmeal and then dried

Duchesse potatoes - potatoes with eggs and butter placed in a pastry tube

duck grade - see "poultry grade"

dull market - a downward trend

Duncan - a variety of early Florida grapefruit

Du puits - a variety of alfalfa

Durham - name once used for the Shorthorn breed of cattle

Duroc - a meat type breed of hogs that originated in New England from several strains of red hogs (primarily the Jersey Reds of New Jersey and Durocs of New York); it is cherry red in color and has drooping ears

Duroc-Jersey - early name of the hog association now known as Duroc

durum wheat - (Tricilum durum) a hard wheat with high gluten content used in making macaroni products

Dutch Belted - a dairy type breed of cattle

Dutchess - a variety of apples that are in season in July to Sept. that make good pies and sauce but only fair eating

D-value - see "decimal reduction time"

dwarfism - small, midget type animals usually associated with cattle; (y - gene for dwarf and x - normal gene):

(1) dwarf carrier (xy) X non-dwarf carrier (xx)

—————> $\frac{1}{2}$ offsprings carrier (xy) & $\frac{1}{2}$ offsprings non-carrier (xx)

(2) dwarf carrier (xy) X dwarf carrier (xy)

—————> $\frac{1}{4}$ offsprings dwarf calf (yy) & $\frac{1}{2}$ offsprings carrier calf (xy) & $\frac{1}{4}$ offsprings non-dwarf carrier (xx)

dwt - see "grain (troy)"

Dy - see "dysprosium"

dyes - soluble substances that absorb radiant energy in the visible spectrum

dyne-centimeter - a measure of heat, energy, work

$$\begin{aligned} 1 \text{ dyne-centimeter} &= 1 \text{ erg} \\ &= 0.00101979 \text{ gram-centimeter} \\ &= 0.0000000737612 \text{ foot-pound} \end{aligned}$$

dyne per cubic centimeter - a measure of density

$$\begin{aligned} 1 \text{ dyne (per cubic centimeter)} &= 0.00118528 \text{ poundals/in}^3 \\ &= 0.00101979 \text{ gram/cm}^3 \end{aligned}$$

dyne per square centimeter - a measure of pressure

$$\begin{aligned} 1 \text{ dyne (per sq. centimeter)} &= 0.0010197 \text{ gram/cm}^2 \\ &= 0.000466646 \text{ poundals/in}^2 \end{aligned}$$

dysprosium (Dy) - a rare earth element; at. no. 66; at.wt. 162.51;

oxidation state +3; electron configuration 2-8-18-28-8-2
orbit K L M N O P

E - see "einsteinium"

E - see "volt"

early maturity - reaches full development quickly

early Ohio - an all-purpose variety of potato

earthnut - see "peanut"

easing off - see "downward trend"

Eastern Regional Research Laboratory - Philadelphia 18, Pa.

easy market - a downward trend

ec- - out or outside

ecdysis - molting

éclair - a finger-shaped filled cake

ecology - study of relations of animals and plants

ecto- - see "ec-"

Edam - a mild hard cheese from Holland

edelweiss - a soft ripened cheese from Germany; perennial herb

eel - see "fresh water fish"

EFA - essential fatty acids

egg - reproductive cell in the female

chicken egg contains:

57% white

32% yolk

11% shell

	<u>%</u> <u>water</u>	<u>%</u> <u>protein</u>	<u>%</u> <u>fat</u>	<u>%</u> <u>ash</u>	<u>%</u> <u>carb.</u>
whole egg (minus shell)	73	13	11	1	1
egg white	87	11	0	1	1
egg yolk	49	16	32	2	1

30 doz. crate (or cases) = 55 to 60 lbs.

1 carload = 500 cases (30 doz. each) = 15,000 doz.

egg albumin - egg white

egg grade - measure of firmness and height of yolk and thickness of white; USDA Grades

U.S. grade	AA or fresh fancy quality
" "	A
" "	B
" "	C

egg incubation time -

	<u>(Days)</u>
Duck	28
Geese	30-35
Guinea	28
Hen	21
Pigeon	17
Turkey	28

eggnog - egg beaten with sugar, milk, and sometimes liquor
eggplant - a vegetable (Solanum melongena) whose fruit is used
 as food

eggs à la goldenrod - white sauce with egg whites and sieved
 egg yolk on toast

eggs Benedict - toast, ham, poached egg and Hollandaise sauce

egg shell - 94% calcium carbonate; fertilizer notation
 1.2 - 0.6 - 0.3

<u>egg size</u> -	<u>USDA</u>	<u>Weigh at least</u>
	Jumbo	30 oz./doz.
	Extra large	27 oz./doz.
	Large	24 oz./doz.
	Medium	21 oz./doz.
	Small (pullet)	18 oz./doz.
	Peewee	15 oz./doz.

egg (white) - min. 11.5% egg solids; see "egg"
 max. 0.03% fat

egg white factor - see "biotin"

egg (whole) - min. 25.5% egg solids

einsteinium (E or Es) - a rare earth element; at. no. 99;

mass number of most stable isotope 254;
 electron configuration 2-8-18-32-29-8-2
 orbit K L M N O P Q

elastin - connective tissue protein of meat made up of branched
 fibers; cooking does not appreciably alter the properties
 of elastin fibers

elastrator - is the bloodless method of placing a tight rubber
 ring on an animal for the purpose of docking or castration;
 this cuts off the blood circulation and results in sloughing
 off of the tail or scrotum

Elberta - a variety of freestone peaches

elbow - (horse) joint where back part of foreleg joins body

electrolyte - substance when put into solution is a good con-
 ductor of electricity

electrolytic capacitors - a metal foil with a dielectric metal
 oxide film in an electrolytic solution

electromotive force series (emf) - elements arranged according
 to decreasing tendency to loose electrons and become
 positive ions; sodium, magnesium, zinc, cadmium, iron,
 cobalt, nickel, tin, lead, hydrogen, copper, mercury,
 silver, platinum, chlorine, gold

electron - a small negatively charged particle that orbits the
 nucleus of an atom; charge on electron(e) = 1.59×10^{-19}
 coulomb; mass (at rest) = 9.11×10^{-28} g.

- electronegative - elements which have a tendency to acquire electrons and become negative ions and are, therefore, low in the electromotive force series; Ex.: Cl
- electrophoresis - the movement of electrically charged particles in a d.c. current field
- electropositive - elements that have a strong tendency to lose electrons and are, therefore, high in the electromotive force series; Ex.: Na
- element - one of the distinct, basic types of matter that has characteristic chemical properties
- embryo - (seed) located at one end of the endosperm of a seed;
animal - prior to birth
- embryology - study of development of embryo
- emf - see "volt", "electromotive force series"
- émincé - thin sliced beef
- empirical formula - a formula which expresses the atoms in simplest ratio
- emulsifying agents - substances which encourage dispersion of oil in water; Ex.: albumin, agar, casein, gums, lecithin
- emulsion - a colloidal system in which a liquid is dispersed in a liquid; Ex.: mayonnaise dressing (oil in water)
- enal - I.U.C. ending for an unsaturated aldehyde
- enantio - opposite
- en brochette - broiled on a skewer
- endive - (chicory) a vegetable (Cichorium endivia) whose leaf is used as food or salad green
- endo- - within
- endocrine glands - ductless organs that secrete hormones into the blood stream
- endocrinology - the study of the function and structure of endocrine glands and of function of the hormones they secrete
- endo-enzymes - enzymes which act in the cell which produced them
- endomysium - connective tissue separating the muscle fibers
- endosperm - the large center starchy portion of cereal grain;
83% of wheat
- endrin - a poisonous insecticide that is an isomer of dieldrin
- ene - ending of I.U.C. names of alkenes
- energy value of food - heat given off by burning of a stated weight of food
- English cut - a beef cut made from the thin ends of 4th and 5th ribs
- English medium hog casing - 35 to 38 mm.
- English style side of pork - see "Wiltshire side"
- English system - a method of grading wool based on the number of hanks of yarn that can be produced from a pound of scoured wool

-enone - I.U.C. ending for an unsaturated ketone

enriched rice - rice that is enriched with: iron, thiamine, riboflavin, and niacin

ensilage - storing of green fodder in a silo or trench

Enterprise Seedless - a variety of midsummer Florida orange

entire wheat flour - see "graham flour"

ento- - see "endo-"

entrecôte Bercy - sirloin steak and sauce

entrée - a dish that can be served before main course, between courses, or be the main course

entropion - either or both eyelids roll inward soon after birth and results in eventual blindness

enzyme - organic thermolabile catalysts for metabolic reactions produced by living cells; they can often be separated from the cell that produces them and still retain their activity

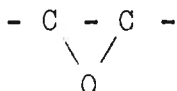
epi- - upon

epidermis - the thin, outer surface, pigmented layer of the skin

epimysium - the connective tissue surrounding an entire muscle

epinephrine - a drug that is extracted from the inner portion (medulla) of the adrenal glands of cattle, hogs and sheep and can be used for shrinking of mucous membranes, as a heart stimulant, and a muscle relaxant

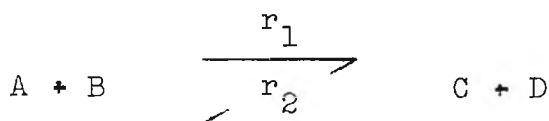
epoxy group -



epsilon (E, ϵ) - Greek letter with an English equivalent of ϵ

epsom salts - magnesium sulphate $Mg SO_4 \cdot 7H_2O$

equilibrium (chemical) - is the state of balance between reactants and products

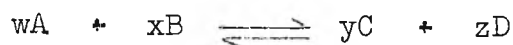


$$r_1 = r_2 \text{ (rate of reaction)}$$

Amounts of A, B, C, and D remain constant

equilibrium constant (K_{eq}) -

for the reaction



$$K_{eq} = \frac{(C)^y \times (D)^z}{(A)^w \times (B)^x}$$

Capital letters in moles per liter

Er - see "erbium"

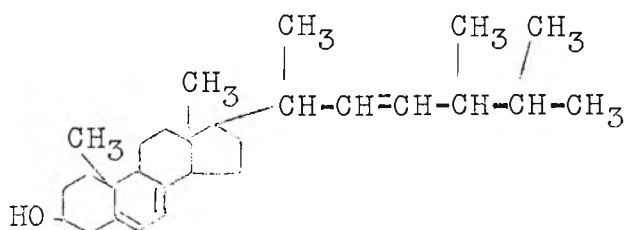
erbium (Er) - a rare earth element; at. no. 68; at. wt. 167.27;
oxidation state +3; electron configuration 2-8-18-30-8-2
orbit K L M N O P

erepsin - an enzyme (mixture of peptidases) secreted into the
small intestine which converts polypeptides into amino acids

erg - a measure of work and energy

$$\begin{aligned} 1 \text{ erg} &= 1 \times 10^{-7} \text{ joule (abs.)} \\ &= 7.3756 \times 10^{-8} \text{ foot lb.} \\ &= 2.3889 \times 10^{-8} \text{ g. cal. (mean)} \\ &= 9.4805 \times 10^{-11} \text{ B.t.u. (mean)} \\ &= 2.3889 \times 10^{-11} \text{ kg. cal. (mean)} \end{aligned}$$

ergosterol ($C_{28}H_{43}OH$) - a chemical which on irradiation with
ultraviolet light yields calciferol (Vit. D_2)



ergot - (horse) horny growth behind the fetlock joint; fungus
that grows on grasses

erg per sec - a measure of power, rate of energy and heat

$$\begin{aligned} 1 \text{ erg per sec} &= 1 \text{ dyne-cm/sec.} \\ &= 4.4254 \times 10^{-6} \text{ ft.lb./min.} \\ &= 1 \times 10^{-7} \text{ watt (abs)} \\ &= 0.0000000737612 \text{ foot-pound/sec.} \\ &= 5.688 \times 10^{-9} \text{ B.t.u./min.} \\ &= 1.34 \times 10^{-10} \text{ horsepower} \\ &= 1 \times 10^{-10} \text{ kilowatt (abs)} \end{aligned}$$

Erlenmeyer flask - a flat bottom flask that gradually tapers to
a narrow mouth

erucic acid - a 22-carbon unsaturated (1 double bond) fatty acid
found in rapeseed oil, mustard seed, and marine fats

erythorbic - see "ascorbic acid"

erythrocyte - red blood cells which contain hemoglobin; see

"red blood cells"

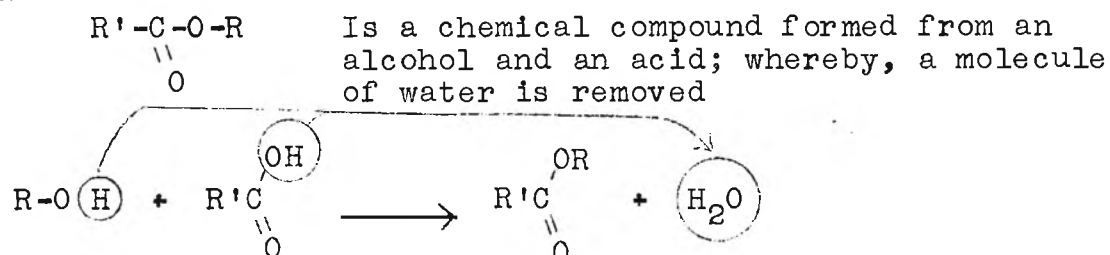
erythroplastids - see "erythrocytes"

Es - see "einsteinium"

escalopes - thin pieces of meat

essential oils - volatile, odorous liquids (not glycerol esters)
found in plants

ester -



I.U.C. name of the alkyl group (R) is followed by the name of the acid with the "ic" dropped and "ate" added

esterases - enzymes that attack simple esters

esterification - forming an ester

estragon - see "tarragon"

estrogen - a drug isolated from bovine ovaries which can be used in treatment of menopausal syndromes

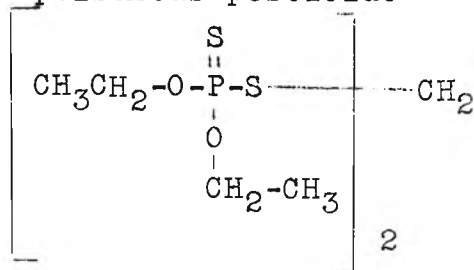
eta (H, η) - Greek letter with an English equivalent of \bar{e}

ethanol - see "ethyl alcohol"

ether ($R'-O-R$) - organic compounds in which 2 alkyl groups are attached to an oxygen atom; I.U.C. name - "ane" is dropped from shorter hydrocarbon, "oxy" is added to center, followed by name of longer hydrocarbon; see "ethyl ether"

ether extract - see "fat analysis"

ethion - a poisonous pesticide



ethyl alcohol (CH_3-CH_2) - commercial grade is 95% (92.3% by wt.; 94.9% by vol.); often called ethanol or alcohol
OH

density = 0.798 at 60°F.

b.p. = 78.5°C.

ethylene (gas) ($CH_2=CH_2$) - used in ripening some fruit; the gas destroys the chlorophyll so that the other pigments may become visible

ethylene oxide $(\text{CH}_2)_2\text{O}$ - a fumigant for food; $\text{H}_2\text{C} \begin{array}{c} \text{---} \\ \diagdown \quad \diagup \\ \text{O} \end{array} \text{CH}_2$

ethyl ether $(\text{CH}_3\text{CH}_2\text{-O-CH}_2\text{-CH}_3)$ - used as a general anesthetic

$$d_4^{25} = 0.708$$

$$b = 34.6^\circ\text{C}.$$

Test for peroxide in ether:

1. Shake for 1 hour 10 ml. of ether with 1 ml. of aqueous potassium iodine (1 to 10)
2. Protect from light
3. When viewed transversely against a white background no color should be seen in either layer

ethyl formate $(\text{HCOOC}_2\text{H}_5)$ - used as a fumigant; also flavor for lemonade

Eu - see "europium"

European corn-borer - an insect that bores through the stalk of corn at any spot; Control: destroy and plow under stalks
DDT
endrin
heptachlor

European plan - hotel only, no meals

europium (Eu) - a rare earth element; at. no. 63; at. wt. 152.0; oxidation states +2, +3; electron configuration 2-8-18-25-8-2 orbit K L M N O P

evaporated food - food dried with the use of artificial heat

evaporated milk - produced from whole milk by reducing the volume 40 to 50% by evaporating the water; it is then sterilized at 240°F . for 16 min.; total milk solids not less than 25.5%;

Min.: 7.9% milk fat
25.9% total milk solids

Max.: 0.1% {disodium phosphate
sodium citrate
calcium chloride

Min.: 25 U.S.P. units of vitamin D/fluid ounce;
see "sweetened condensed milk"

evaporated skimmed milk - Min.: 20% milk solids

ewe - a female ovine animal (sheep) of any age; average gestation period 147 days (range 142-157); duration of heat 1-3 days; normal recurrence of heat 15 to 21 days

ewe neck - a depression at the top of the neck forward of the withers

ex-light steer hide - a steer hide weighing less than 48 pounds

exo-enzymes - enzymes which act outside of the cell which produced them

exposure guide - universal daylight exposure guide for black and white film:

Subject brightness	L i g h t		C o n d i t i o n s	
	Bright sun	Hazy sun	Cloudy bright	Cloudy, dull or open shade
Brilliant	32	22	16	11
Bright	22	16	11	8
Average	16	11	8	5.6
Dark	11	8	5.6	4

$$\text{Shutter speed} = \frac{1}{\text{film ASA \#}}$$

Table gives f values

extensor - a muscle that extends (straightens) a joint

external abdominal oblique - an outside sheet of muscles of the flank whose fibers point down and backward

extra- - out or beyond

extracted honey - honey separated from comb by centrifugal force

extra dry vermouth wine - a very dry, clear wine with a trace of herbs in its flavor

extra narrow hog casings - 29 or less millimeters in diameter

extra wide hog casing - 43 or greater mm. in diameter

eye of round (semitendinosus) - small triangular shaped muscle of the round; see "semitendinosus"

F - see "fluorine"

F₁ - offspring of parental generation (P₁)

F₂ - offspring of crossing F₁

F.A.C. - Fat Analysis Committee

factor - quantity is exactly divisible by its factors; Ex. 6 is 1, 2, 3 & 6

factor, prime - numbers that are divisible only by themselves and one, when multiplied together give a quantity; Ex. 45 is 5x3x3

factorial ln, n! - a number multiplied by each number lower than it until you reach 1. Ex.: 7 factorial (1 7)

$$7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 5040$$

can be estimated by Stirling's approximation formula

$$\ln = n \cdot e^{-n} \cdot \sqrt{2\pi n} \cdot \left(1 + \frac{1}{12n} + \frac{1}{288n^2} + \dots\right)$$

value in parenthesis is practically unity for large values of n.

facultative anaerobes - bacteria that can grow with or without oxygen

F.A.D. - flavine adenine dinucleotide

fagot (faggot) - pork is cooked and then mixed with ground livers, hearts, and onions. This is made into a ball and covered with caul fat and baked with bundle of thyme, marjoram and bay leaf

fahrenheit (F.) - a measure of temperature

Freezing of water 32°F.

Boiling of water 212°F. at 760 mm

Absolute zero -459.6°F.

Normal body temp. 98.6°F.

$$F. = \frac{9}{5} C. + 32$$

C. = celsius

$$C. = (F. - 32) \frac{5}{9}$$

R. = reaumur

$$F. = (R \frac{9}{4}) + 32$$

$$\text{Rankine} = F + 459.67$$

$$R. = (F. - 32) \frac{4}{9}$$

fall armyworm - see "armyworm"; a worm that feeds on young leaves and ears of corn plant; Control: DDT, endrin, toxaphene

false rib (asternal) - ribs whose cartilage is attached to the cartilage of the rib in front of it; see "rib"

fancy sausage - usually uncooked, dry or semi-dry sausage

F.A.O. - Food and Agriculture Organization of the United Nations

farad - a unit of capacitance; 1 farad is when 1 coulomb charges a capacitor to 1 volt

faraday (F) - an electrical measurement;

1 faraday = 96,500 coulombs = the amount of electricity required to deposit 1 g. equivalent weight in electrolysis

farci - stuffed

farfals - a mixture of wheat flour and water (sometimes also milk and eggs) that has been dried and then ground

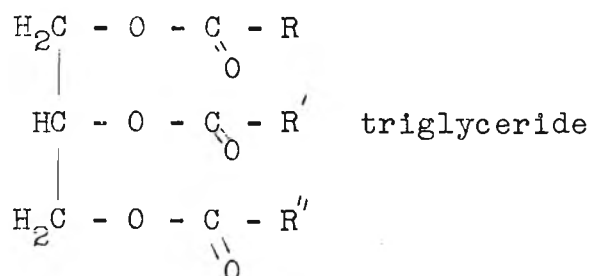
farina - see "potato starch"

farmer sausage - a 65% beef, 35% pork product that is ground fine, seasoned and smoked heavily

farmer style hog carcass - carcass split on both sides of the backbone

farrow - to give birth to pigs

fat - is an ester of glycerol and the fatty acids



Natural fat is a mixture of the various glycerides; physiological value 9 Cal./gram

They are lighter than water; they are poor conductors of heat Solid at room temperature (18 - 25°C.), called "oil" if liquid at this temperature

fat analysis (crude fat) - is determined by extracting the dried sample with anhydrous ethyl ether or petroleum ether; the loss in sample wt. or residue after solvent evaporation is reported as fat

fat-end middle - natural casings used in the meat trade; it comes from the last part of the large intestine of beef

fathom - a measurement of length; 1 fathom = 2 yards
= 1.829 meter
= 6 feet

fatigue - condition which results in loss of ability to respond to a stimulus

fatliquoring - adding a fat or oil to damp leather to keep it from becoming hard and dry

fat soluble - a substance which is easily soluble in fat

fat-soluble vitamins - vitamins A, D, E, and K

fat stability analysis - is determined by the hours it takes fat to reach a specific peroxide value under a given set of conditions which include aeration of the sample at an elevated temperature

fatty acid - $\text{R}-\overset{\text{O}}{\underset{\text{O}}{\text{C}}}-\text{OH}$

Fe - see "iron"

feather - (horse) - long hair at rear of cannons and ankles

feather bones - superior spinous processes or flat processes on the vertebrae in the thoracic region

feces - indigestible residue coming from digestive tract

fedelini - see "spaghetti"

feed cattle grades - fancy, choice, good, medium, cull

feeders - cattle that are of the proper size to be put on a fattening ration before slaughter

feeding limestone - good source of calcium; contains almost no magnesium

feeding tankage - see "meat meal tankage"

feeding tankage with bone - see "meat meal tankage"

feet (ft.) - see "foot"

feet-columns of water (max. density at 4°C., 39°F.) - a measure of pressure

- 1 = 62.426 pounds per sq. foot (psf)
- = 22.4185 millimeters (columns of mercury, Hg. 13.59593 sp g)
- = 0.88262 inch (columns of mercury, Hg. 13.59593 sp g)
- = 0.43353 pound per sq. inch (psi)
- = 0.30480 meter (columns of water, max. density at 4°C., 39°F.)
- = 0.03048 kilogram per sq. centimeter (kg./cm²)
- = 0.0299 bars
- = 0.02950 atmospheres, standard (760 mm)

feet fallen from rest - feet fallen from rest = (seconds)² x 16.08

feet per minute (fpm) - a measure of velocity

- 1 fpm = 0.508 centimeter/second
- = 0.305 meters/min
- = 0.018288 kilometers/hr
- = 0.017 feet/second
- = 0.011364 miles/hour

feet per second (fps) - a measure of velocity

- 1 fps = 1.09728 kilometers per hour
- = 0.68182 mile per hour (mph)
- = 0.59209 knots U.S.
- = 0.30480 meter per second (mps)

feet per sec/sec (fps²) - a measure of acceleration

- 1 = 0.68182 mile per hour/sec (mph-s)
- = 0.30480 meter per sec/sec (mps²)

Fehling's solution - contains 173 g sodium potassium tartrate

($\text{NaKC}_4\text{H}_2\text{O}_6$) and 50 g. sodium hydroxide in 500 ml.; another solution contains 34.6 g. copper sulfate in 500 ml.; mix prior to use; on reacting with a reducing sugar, it yields cuprous oxide (Cu_2O) (dark red)

feldspar - anhydrous silicates of alumina

fell - a membrane between muscle and the skin of an animal

felt - fabric made from short wool (also hair or fur); it is pounded together while the wool is hot and moist; weaker strength than woolen fabric

female - sex that produces the ovum; see "sex"

femoral artery - an artery located in the rear legs and used to distribute the curing pickle when artery curing hams

femto- - (one quadrillionth) 0.000 000 000 000 001
prefix for quantities smaller than the base unit

femur - rear leg (thigh) bone

fence post treatment - chemical solutions to use:

1. Cold-tar creosote (100% or can be mixed with 50% kerosene or fuel oil)
2. 5% solution of pentachlorophenol (very toxic)
3. 5% solution of copper naphthenate

Methods in order of preference:

1. Pressure
2. Hot and cold bath
3. Cold soaking

fender rail - a rail placed around the wall of a farrowing pen to keep the sow from mashing her pigs

fennel (Marathon) - (Foeniculum vulgare Mill) yellowish-brown seed (to 5/16 inch in length) of sweet fennel or bitter fennel used in seasoning

fenugreek seed - (Trigonella foenum-graecum L.) small reddish-brown seed that grows in a pod of a plant of the pea family; they are used in curry powder

fermentation - breakdown of sugar to CO_2 and alcohol

fermented vinegar - made by fermentation without distillation;

Min.: 2% solids; 0.25% ash

fermière, à la - with discs of carrots, potatoes, celery, onions, cabbage, and turnips

fermium (Fm) - a rare earth element; at. no. 100; mass number of most stable isotope 255; electron configuration 2-8-18-32-30-8-2
orbit K L M N O P Q

ferric - iron in higher valence; Fe^{+++}

ferrous - iron in lower valence; Fe^{++}

fertilizer analysis - x - y - z

x = total nitrogen; y = available P_2O_5 ; z = available K_2O

fescue (*Festuca*) - a perennial grass used for pasture; seed 24 lbs./bu.; 8 to 10 lbs./acre in mixtures; 15-20 lbs./acre alone; Varieties: Kentucky 31, alta; nutrient used for 3 tons of grazing - 135 lbs. N; 60 lbs. P₂O₅; 210 lbs. K₂O

fetlock - area on legs below cannon and above pastern (ankle)

fettucelle - see "spaghetti"

F.F.A. or (ffa) - see "fresh freezer accumulation";
see "free fatty acid analysis"

fibro- - fiber

fibroin - the principal protein of silk yard and is made up of the following amino acids: glycine, alanine, tyrosine, and arginine

fibrous connective tissue - connective tissue in which the fibers are closely woven with little space between them

fibula - small hind shank bone running parallel to the tibia and is often fused to it

ficin - a proteolytic enzyme from the sap of the fig tree

fidelini - see "spaghetti"

file - leaves and leaf buds of sassafras that have been dried and powdered and are used as seasoning

filet - meat with bones removed

filet mignon - filet of beef garnished with bacon

filled milk - milk in which the butter fat has been replaced by vegetable fat

fillet - a strip of lean meat or fish without bone; see "psoas major" and tenderloin

filly - a young female horse that has not produced a foal

filtrate - liquid which has passed through a filter

filtrate factor - see "pantothenic acid"

fin bones - see "feather bones"

fine-wool type sheep - classification of sheep which includes the following breeds: American Merino, Delaine Merino, and Rambouillet

finish - indicates the amount and distribution of fat; fatness, smoothness

finnan haddie - smoked haddock

fire point - see "flash point"

fish meal - a 70% protein animal food made from fish house waste

fish scrap (fertilizer) - may be used as an agricultural fertilizer; 9.5-6-0; it is slightly acid in nature and would require .05 lbs. of dolomitic limestone to neutralize each pound applied

fistula - an abscess in the area of the withers; an opening into an internal organ

five-gaited horses - 3 natural gaits: walk, trot, canter
2 man-made gaits: slow gait, rack

fixing agents - a substance used to preserve protoplasm with the least amount of alteration; solutions used are alcohol, formalin, mercuric bichloride, potassium bichromate, acetic acid, formic acid, osmic acid, picric acid; mixtures used are Zenker's fluid, Bouin's fluid, and Mueller's fluid

flake - dehydrated vegetables used as flavoring material; or, to break into small pieces

flake tapioca - dough made from tapioca flour, rolled in thin sheets, baked; and, if ground, is called granular tapioca

flame - a variety of grape

flank - about 4% of a choice cattle carcass

flank steak - (Rectus abdominus) a tear-shaped steak removed from the flank area; a membrane is removed from it and it is usually cut across the fibers; only two of these steaks may be obtained from an animal

Flash 18 (Swift & Co.) - a canning system in a pressurized can (18 lbs.) filling room; this raises the boiling point of a liquid (250°-255°F. is normally used)

flash point - can be ignited but will not support combustion

	<u>smoke point</u>	<u>flash point</u>	<u>fire point</u>
fats (range)	320-500°F. (160-260°C.)	554-626°F. (290-330°C.)	644-689°F. (340-365°C.)
cotton seed oil	450°F. (232°C.)	625°F. (330°C.)	685°F. (363°C.)

flat bone sirloin - see "double bone sirloin"

flavoproteins - a complex of a flavin nucleotide (see "riboflavin phosphate" and "adenine-riboflavin dinucleotide") and an enzyme

flavor - the ability of food to stimulate the senses located in the alimentary and respiratory tracts; odor and taste

flax - a vegetable fiber composed primarily of cellulose

flaying - removing the skin from an animal in a uniform pattern

fleece - the wool of a sheep

flesh - muscular tissue of animals

flexor - a muscle that flexes (bends) a joint

floating rib - a rib with no cartilage

flora - plant life of an area

florentine, à la - with spinach

Florida and Walters - a variety of mid-season Florida grapefruit

flounder - see "demersal fish"

flour - 1 barrel = 196 lbs.

2 - 2.5 mg. thiamine/lb.

1.2 - 1.5 mg. riboflavin/lb.

16 - 20 mg. niacin or niacin-amide/lb.

13 - 16.5 mg. Fe/lb.

self-rising flour:

500 - 1500 mg. calcium/lb.

fluorescence - the ability of a compound to absorb light of one wavelength and radiate light at another wavelength

fluorine (F) - an element; at.no. 9; at.wt. 19.00;

oxidation state -1; electron configuration 2 - 7
orbit K L

1 ppm is often added to drinking water

fly (horn) - small black flies; a large number will concentrate on a small area of an animal; Control: methoxychlor - dairy cattle

malathion - beef cattle
toxaphene

fly (horse) - large black fly; Control: methoxychlor, pyrethrum

fly (house) - parasite; Control: diazinon, lindane, malathion, methoxychlor, pyrethrum

Fm - see "fermium"

foal - a colt or filly less than one year old

foam - a colloidal system in which a gas is dispersed in a liquid

fog - a colloidal system in which liquid is dispersed in a gas

folded rib roast - a standing rib roast with a portion of the ribs removed and the roast folded

folic acid (PGA) - a factor necessary for the production of red and white blood cells; found in the liver in the form of pteroyl glutamic acid; Sources: liver, kidney, dried beans, beef, yeast, green leafy vegetables, wheat, mushrooms

food - serves to nourish, build tissue, supply heat

food poisoning - see "Clostridium botulinum"; "Staphylococcus aureus"; and "salmonellosis"

foot (ft.)(l') - a measure of length

1 foot (ft.) = 30.48006096 centimeters (cm.)

= 12 inches (in.)

= 3.048006 decimeters

= 3 hands (U.S.)

= 0.33333 yard (yd.)

= 0.3048006 meter (m.)

= 0.06061 rod (rd.)

= 0.0151515 chain (Gunter's)

= 0.0003048 kilometer (km.)

= 0.0001894 statute mile

= 0.00016447 U.S. nautical mile

3 feet = 1 yard

3.28 ft. = 1 meter

foot - horny growth and its contents on all animals

foot and mouth disease - a virus caused disease that affects all cloven-footed animals; it is highly infectious

foot-candle - unit of illumination

1 foot-candle = 10.764 lux
 = 1.0764 milliphots
 = 1 lumen/sq. foot

foot-pound (ft.-lb.) - a measure of heat, energy, work

1 foot-pound (ft-lb) = 13,557,300 ergs or centimeter dynes
 = 13,825.5 gram-centimeters
 = 32.174 foot poundals
 = 1.35573 joules (10^7 ergs)(j)
 = 0.32389 g.cal. (mean)
 = 0.13826 kilogram meter (kg-m)
 = 0.001285 British thermal units (mean)
 = 0.0003239 kg-cal thermal units (mean)
 = 0.0000005121 metric horsepower-hour
 (75 kg-m-hr)
 = 0.0000005051 U.S. horsepower-hour (hp-hr)
 = 0.00000037662 kilowatt hour (kw-hr)

foot-pound per second (ft-lb/sec) - a measure of power, rate of energy and heat

1 ft-lb/sec = 13,557,300 ergs/sec
 = 13,825.5 gram-cm/sec
 = 60 ft.lbs./min.
 = 1.35573 watts (10^7 ergs/sec)
 = 0.13826 kilogram meter per second (kg-m/sec)
 = 0.077124 Btu/min. (mean)
 = 0.001843 metric horsepower (75 kg-m/sec)
 = 0.001818 U.S. horsepower (550 ft-lb/sec)
 = 0.001356 kilowatt (kw)
 = 0.001285 Btu/sec (thermal units per sec)
 = 0.0003237 kg-cal/sec (thermal units per sec)

foot rot (foul foot) - an infection of the foot of cattle and sheep causing swelling around top of foot and inflammation between digits; soak in 5% copper sulphate

foots - soapstock, alkali soap

foramen - opening in a bone

forati - see "spaghetti"

foratini - see "spaghetti"

fore quarter - front portion of a beef carcass that has usually been divided between the 12th and 13th rib (approx. 52% of carcass); it is usually divided into wholesale cuts called: chuck, rib, brisket, shank, plate and short ribs

fore saddle - a wholesale cut of veal or lamb consisting of all in front of the 12th rib; the 2 quarters are not split

fore shank - made up of ulna and radius of a carcass

forestière - with mushrooms

forging - overreaching or striking heel of forefoot with hindfoot on the same side

formal - see "molal"
see "formalin"
see "methylal"

formaldehyde - HCHO; a water soluble gas; produced in smoke used for smoking food

formalin - commercial formalin is 40% formaldehyde in water; approx. 37% formaldehyde, 10-15% methanol in water (same as 40% formalin); disinfectant in a 1:2000 to 1:200 solution; fixing fluid; preservative

formic acid -
$$\begin{array}{c} \text{OH} \\ | \\ \text{H}-\text{C} \\ || \\ \text{O} \end{array}$$
 mp 8.4°C., bp 100.5°C.; commercial acid; density 1.20 = 90% by wt.
density 1.06 = 25% by wt.

formol - see "formalin"

formolose - see "formalin"

formyl - radical
$$\begin{array}{c} \text{H} \\ \diagdown \\ \text{C} \\ \diagup \\ \text{O} \end{array}$$

fortified dry wine - dry wine that has had brandy added

fortified sweet wine - sweet wine to which wine spirits have been added

fossa - depression in a bone

Foster - a variety of late Florida grapefruit

foul foot - see "foot rot"

founder - overeating

fovantini - see "macaroni"

fowl - see "hen"

foxtail - a variety of millet

Fr - see "francium"

francium (Fr) - an element; at.no. 87; mass number of most stable isotope 223; oxidation state +1; electron configuration

2-8-18-32-18-8-1
orbit K L M N O P Q

frank - see "frankfurter"

frankfurter - (wiener, wienies, frank, red hot, vienna sausage)

a comminuted, cooked, smoked, small casing sausage; normally 60% beef, 40% pork

30-70% beef	2 oz. NaNO_3 /100 lbs*
25-50% pork	$\frac{1}{4}$ oz. NaNO_2 /100 lbs*
0-40% veal	4-7 oz. white pepper/100 lbs*
0-8% pork liver & hearts	1-3 oz. coriander/100 lbs*
0-15% defatted pork solids	1-2 oz. ginger or mace/100 lbs*
0-20% tripe	0-3 oz. onion juice/100 lbs
20-40% ice*	0-1 oz. cardamon/100 lbs
2-3% salt*	0-1 oz. cinnamon/100 lbs
7-16 oz. sugar/100 lbs*	0-1 oz. sage/100 lbs
0-7% binder	0-1 oz. garlic/100 lbs
	0-7/8 oz. ascorbate/100 lbs
	0-1 oz. mustard/100 lbs
	0-2 oz. nutmeg/100 lbs

* combination used in some formulations

1. Grind 1/8" plate
2. Mix beef, seasoning, ice, binder
3. Chop
4. Add pork, ascorbate
5. Chop; Max. temp. 65°F.
6. Stuff and link
7. Smoke -

<u>Temp.</u>	<u>Time</u>	<u>Condition</u>
130°F.	$\frac{1}{2}$ hr	No smoke
140°F.	$\frac{1}{2}$ hr	Smoke
150°F.	$\frac{1}{4}$ hr	"
160°F.	$\frac{1}{4}$ hr	"
170°F.	$\frac{1}{4}$ hr	"
180°F.	Internal temp. of 152°F.	Steam

8. Shower 15 min.
9. Cooler

frappe - a semi-frozen ice or fruit juice

free fatty acid analysis (ffa) - is determined by mixing hot fat with hot neutralized ethyl alcohol and then titrating the mixture with a standard weak base; results usually are expressed as oleic acid; see "acid value"

freemartin - a sterile female calf born twin with a male calf

free water - water that is not an integral part of the living cell with which it is associated

freeze drying - a food is frozen and placed in a vacuum; the ice is vaporized and trapped leaving a dried product

freezer burn - dehydration of frozen food; can be eliminated by proper wrapping

freezing point - temperature at which a liquid becomes a solid

French artichoke - a vegetable whose flower is used as food

French Canadian - a dairy type breed of cattle

French Charollais - see "Charolais"

French combing wool - wool that is shorter than normal combing wool yet can be combed on the French style of combs

French dressing - a temporary emulsion of oil and acid and seasoning; paprika gives it its red color

frenching - removing the meat (2 inches) from the end of a bone

French leg of lamb - tibia is left in the leg and it is frenched

French Merino - see "Rambouillet"

Freon - refrigerant

		<u>M.P.</u>	<u>B.P.</u>
Freon 11	- Trichloromonofluoromethane	-111°C.	23.7°C.
" 12	- Dichlorodifluoromethane	-158°C.	-29.8°C.
" 114	- 1,2 dichloro -1,1,2,2 tetrafluoroethane	-94°C.	4.1°C.
" C318	- Octafluorocyclobutane	-41.4°C.	-6.0°C.

frequency - # of cycles/sec

Fresh Freezer Accumulation (F.F.A.) - fresh meat that is fresh, partly frozen or solidly frozen which has been accumulated in the last 15 days and is in good condition

fresh water fish - fish caught in fresh water; i.e., eel, Pacific salmon, salmon, and salmon trout; composition of edible portion - 16% av. protein; up to 20% fat in salmon; up to 30% fat in eels

fricase - meat with sauce

fricassee - to cook fowl or rabbit by braising

Friesian - see "Holstein-Friesian"

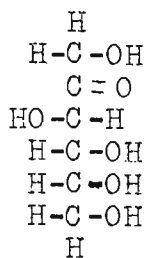
fritted glass - ground glass that has been fused together to form a sheet of filtering (porous) material

fritter - fried

frizzie (soppresata) - a dried pork and beef sausage that is stuffed in a hog middle and dried without smoking for 60 to 90 days; it has a crinkled shape

fromage, au - with cheese

fructose (levulose, fruit sugar) - a 6-carbon monosaccharide (hexose) which is widely distributed in nature; $C_6H_{12}O_6$ 173% as sweet as sucrose; m.p. 103°C.; found naturally in honey, fruits



fruit - edible tissue resulting from the flower of a plant and usually containing the ripened seed; formed from the ovary of the flower

fruit cake - rich cake containing raisins and candied fruit

fruit grade (fresh consumer grade) - U.S. Grades - A, B, C

fruit grades (fresh wholesale) - U.S. Extra Fancy

U.S. Fancy (in some fruits, this is the top grade)

U.S. No. 1

U.S. Utility or U.S. No. 2

fruit grades (processed) - U.S. Grade A or U.S. Fancy

U.S. Grade B or U.S. Choice or

U.S. Extra Standard

U.S. Grade C or U.S. Standard

fruit sugar - see "fructose"

fry - cook in fat

fryers - young chickens from $3\frac{1}{4}$ to $4\frac{1}{4}$ lbs.

f - stops - diaphragm openings

Full f stops:

Wide open 1, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, 45, 64, 90 Almost closed

Closing down a stop \longrightarrow

Opening up a stop \longleftarrow

Fuller's earth - refining agent for fats and oils; composed of clay and silicious material

full fat soy flour - beans are hulled, ground and processed without fat removal; up to 23% fat, 43% protein

full pension - hotel plus 3 meals (breakfast is Continental)

fully cooked - see "smoked temperature"

fumeol - refined smoke used to make liquid smoke

fumigation - killing pests by exposure to gases

fungicide - a chemical used to destroy or to protect against fungi (and other related growth) on plants

F_o - units - heat treatment equivalent to minutes at 250°F.

F - units - the thermal death time of organisms may be expressed as F values with a subscript indicating the temperature in Fahrenheit (Example: F₂₀₀)

fur - the skin of certain animals

see "blended fur"

"blocked furs"

"dropped fur"

"leathered furs"

"let-out fur"

"stayed fur"

"tip-dyed fur"

furlong (fur) - a unit of linear measure

1 furlong = 220 yards
 = 40 rods
 = 660 feet
 = 201.168 meters
 = 0.125 mile

8 furlongs = 1 sta. mile

fuse - Size:

<u>Length</u>		<u>SFE#</u>	<u>AG#</u>
<u>mm</u>	<u>in.</u>		
15	19/32	4	1
18	23/32	6	-
21	13/16	7½ & 9	7
24½	31/32	-	8
25½	1	14	-
30	1-3/16	20	3
35	1-3/8	30	9

fused rock phosphate - a fertilizer material; it contains 30% total P₂O₅

fusel oil - a by-product of alcohol fermentation and contains organic alcohols and acids

fusion point - see freezing point

futures - is the purchase or sale of contracts that call for delivery of a specified volume of a commodity at a specific place and time

G - see "conductance"

G-4 - a Griffith antioxidant containing: propyl gallate,
lecithin, corn oil, and citric acid

Ga - see "gallium"

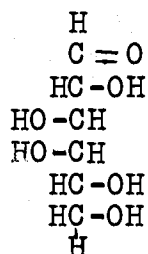
gadfly - horsefly

gadolinium (Gd) - a rare earth element; at.no. 64; at.wt. 157.26;
oxidation state +3; electron configuration 2-8-18-25-9-2
orbit K L M N O P

gaffelbitar - herring preserved in 10-12% salt

gahi - a variety of millet

galactose - a 6-carbon monosaccharide (hexose) which is found in
combination with other sugars in legumes, agar, pectin and
gum; $C_6H_{12}O_6$; 32% as sweet as sucrose; a constituent of
lactose



gall - bile secreted by liver

gallium (Ga) - an element; at.no. 31; at.wt. 69.72; oxidation
state +3; electron configuration 2-8-18-3
orbit K L M N

gallon (dry)(U.S.)(d.gal.) - a measure of volume

1 d.gal. = 268.803 cubic inches (cu.in.)
= 4.65460 U.S. liquid quarts (l.qt.)
= 4.40492 cubic decimeters (dm³)
= 4 U.S. dry quarts (d.qt.)
= 1.16365 U.S. liquid gallons (l.gal.)
= 0.15556 cubic feet (cu.ft.)
= 0.125 U.S. bushels (bu.)
= 0.005761 cubic yards (cu.yd.)

gallon - imperial (Br.)(Canadian)(Imp.)(gal.) - a measure of volume

1 Imperial gallon = 4545.96 ml.
 = 277,274 cubic inches (cu.in.)
 = 160 British fl. oz.
 = 10.0221 lb.(avoir) of water at 60°F. or
 10 lbs. at 16.7°C.(62°F.)
 = 4.546 liters
 = 4.54 cubic decimeters (dm³)
 = 4.30128 U.S. liquid quarts (l.qt.)
 = 4.1267 U.S. dry quarts (d.qt.)
 = 4 quarts (Br. fl.)
 = 1.20094 U.S. liquid gallons (l.gal.)
 = 1.0317 U.S. dry gallons (d.gal.)
 = 0.1605 cubic feet (cu.ft.)
 = 0.12896 U.S. bushels (bu.)
 = 0.0059429 cubic yards (cu.yd.)
 = 4.546 x 10⁻³ cu. meters

gallon (liquid)(U.S.)(l.gal.) - a measure of volume

1 l.gal. = 61440 minims
 = 3785.434 cubic centimeters
 = 3785.33 ml.
 = 1024 drams (U.S. fl.)
 = 231.00 cubic inches (cu.in.)
 = 133.23 ounces (Br. fl.)
 = 128 fluid ounces (U.S.)
 = 32 gills
 = 8.34545 lb.(avoir), pure H₂O at max. density
 = 8.3370 pounds of H₂O at 60°F.
 = 8.330 pounds of H₂O at 20°C.
 = 8 pints (liquid)
 = 4 U.S. liquid quarts (l.qt.)
 = 3.78533 liters
 = 3.43747 U.S. dry quarts (d. qt.)
 = 0.85937 U.S. dry gallons (d.gal.)
 = 0.83268 gallon (British)
 = 0.13368 cubic feet (cu.ft.)
 = 0.10742 U.S. bushels (bu.)
 = 0.004951 cubic yards (cu.yd.)
 = 3.785 x 10⁻³ cubic meter
 = 3.78543 cubic decimeters (dm³)
 = 0.031746 barrels (U.S. liquid)

gallon (U.S. or Br.) per acre - weight per unit of area

1 gallon (U.S.)/acre = 9.353 l./ha

1 gallon (Br.)/acre = 11.232 l./ha

gallon per minute (gpm) - rate of flow

1 gpm = 2.228 x 10⁻³ cu.ft./sec.

= 0.227 cubic meters/hr.

= 0.06308 liters/second

Galloway - a breed of beef cattle that originated in Southwestern Scotland; they are black, polled, with long curly hair, and smaller than the Angus

gambrel stick - a metal or wooden stick placed in the tendons of the rear legs and used to support the carcass when it is hung on the rail

Gamma (Γ, γ) - Greek letter with an English equivalent of g; 3rd in a series; sometimes used as a metric unit of weight and is equivalent to a microgram

1 Gamma = .001 milligram
= .000001 gram

Gamma ray - high energy electromagnetic radiation coming from the nucleus of an atom; physically they are similar to X-rays

gammon - ham or strip of bacon that has been salted and smoked or dried

garbure - a bacon and vegetable soup

garget - see "mastitis"

garlic (Allium sativum L.) - bulb of a condimental vegetable which is used as food and seasoning; similar to onion; when eaten by cattle will give off-flavor to milk and meat

garlic salt - mixture of garlic powder, salt and starch

garnish - decorate

gas constant (R) - 8.316 joules per degree centigrade
1.9885 calories per degree centigrade
0.08207 liter atmospheres per degree

gaskin - stifle to hock of hindfoot of a horse

gas law - $pV = RT$

p = pressure
v = volume
R = gas constant
T = absolute temp.

gastrocnemius - large muscle behind the tibia which is attached to Achilles tendon; in cross section of the hind shank it is a large U-shaped muscle to the rear of the tibia

gaufrettes - wafers with dessert

Gd - see "gadolinium"

Ge - see "germanium"

gel - colloidal solution that has set to a jelly

gelatin - a colloidal protein made from materials high in collagen and used as food; hide gelatin and bone gelatin are the two types and their name indicates the source of raw material; poor nutritive value because of low tryptophan

gelding - a male horse castrated before advanced sexual development (2 years old)

generation time - the time it takes for a newly divided cell to grow and divide again;

$$\text{generation time} = \frac{\text{time}}{\# \text{ of generations}} = \frac{\text{elapsed time}}{3.3 \log \frac{\# \text{ bact. at end of period of time}}{\# \text{ bact. at start or zero time}}}$$

germ - offshoot; name for bacteria; the embryo (at one end of the kernel) and scutellum in seed and usually separated from the endosperm during milling

germanium (Ge) - an element; at. no. 32; at. wt. 72.60; oxidation states +2, +4; electron configuration 2-8-18-4 orbit K L M N

germicide - destroys microorganisms

germinate - to sprout

gestation period - length of normal pregnancy (between breeding and birth of offspring)

Animals	Average age of puberty in months	Average duration of heat in hours	Average heat interval in days	Average gestation period in days	Frequency of twinning
Cattle	12 ± 1	15 ± 10	21 ± 3	283 ± 5	1 in 200
Sheep	5.5 ± 1	28 ± 25	16.5 ± 3	148 ± 4	depends on breed
Swine	5 ± 1	60 ± 15	21 ± 3	114 ± 12	*
Horses	20 ± 5	156 ± 30	21 ± 4	340 ± 30	

* 6.5 pigs per litter

get - offspring

gherkin - a small cucumber

giblet - fleshy portion of the diaphragm muscle; heart, liver and gizzard of fowl

giga- - (one billion) 1,000,000,000; prefix for quantities larger than the base unit

gigot - leg of mutton

gill (gi) - a liquid measure

1 gill = .25 pint

gilt - a young female hog or pig that has never farrowed and has not reached an evident stage of pregnancy

gimmer - yearling ewe

gin - liquor flavored with oil of juniper

ginger - (Zingiber officinale Roscoe); underground stem (Rhizome) of a reedlike plant obtained whole, cracked or ground

Not less than	42%	starch
"	"	" 12% cold water extract (Jamaica 15%)
"	"	" 2% water soluble ash
"	more	" 8% crude fiber
"	"	" 1% lime
"	"	" 2% acid insoluble ash

ginger extract - 100 cc must contain the alcohol soluble matter from a minimum of 20 g. of ginger

gizzard - digestive portion that precedes the stomach in birds

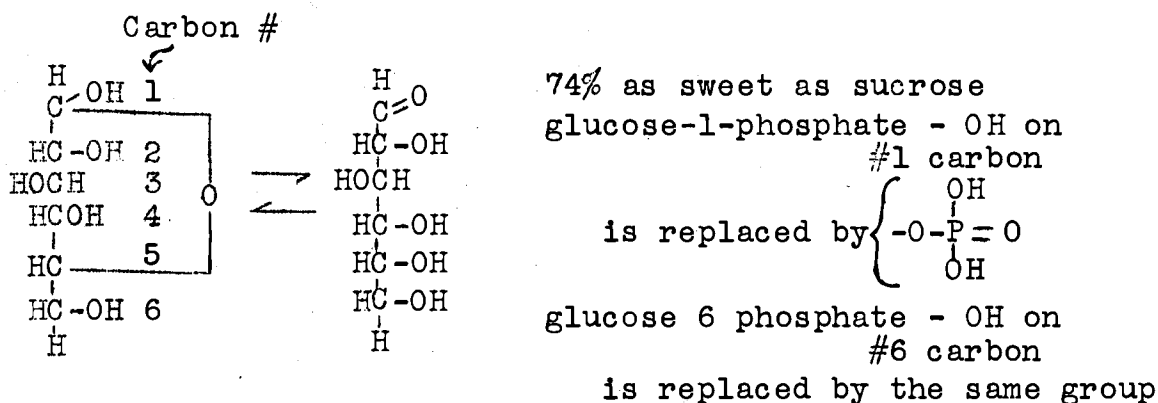
glacial acetic acid - see "acetic acid"

glaze - coat with syrup

globulins - a simple group of proteins that are insoluble in water but soluble in neutral salt solution (5% NaCl) and are coagulable by heat

glucoproteins - see "glycoproteins"

glucose (dextrose), (grape sugar), (blood sugar) - is a 6-carbon monosaccharide (hexose) which has a wide distribution in nature; $C_6H_{12}O_6$; see "corn sugar"

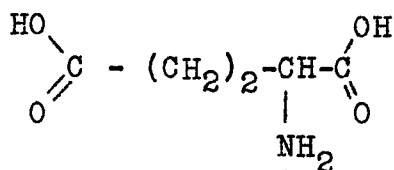


glucose commercial - mixture of glucose, dextrin and maltose made by incomplete hydrolysis of starch

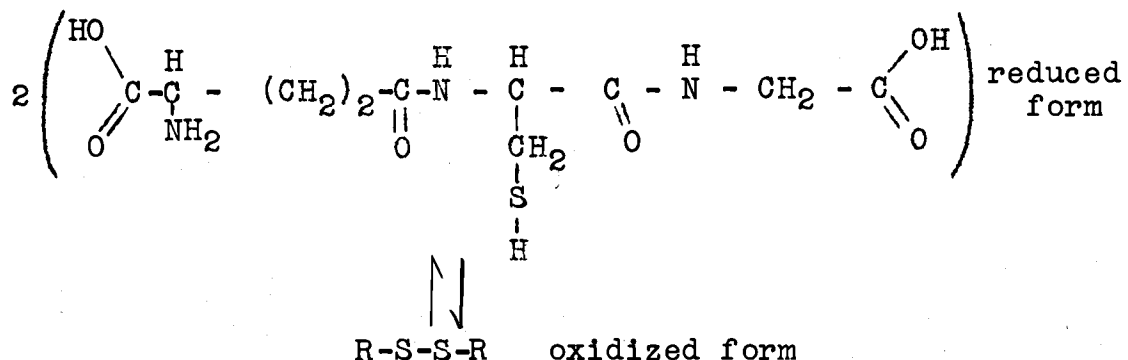
glucose syrup - see "corn syrup"

glue - adhesive; a colloidal protein made from materials high in collagen; types of animal glue are: (1) hide glue, (2) bone glue, and (3) blood albumin glue (water resistant)

glutamic acid - a monoamino-dicarboxylic amino acid; sodium salt is used to give meat flavor to foods



glutathione - a widely distributed tripeptide of glutamic acid, cysteine and glycine;

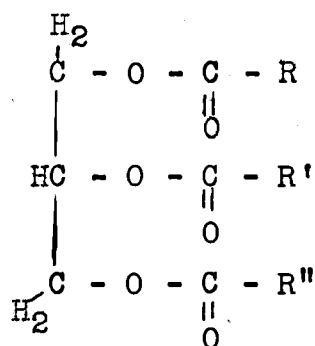


glutelins - a group of simple proteins that are insoluble in water or salt solution but are soluble in dilute acids or alkalies

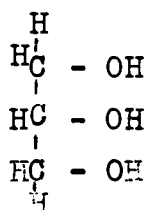
gluten - the tough, viscous nitrogenous substance remaining when the flour of grain is washed to remove the starch

gluteus - a muscle of the thigh that runs from the spinous processes of the sacrum, over the ilium to the outside of the femur

glyceride - is an ester of glycerol and 3 fatty acids and is the main constituent of vegetable and animal fats

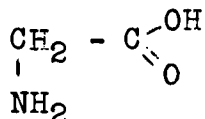


glycerol (glycerin) - $\text{C}_3\text{H}_5(\text{OH})_3$ A viscous clear liquid and is obtained when natural fats are broken down by hydrolysis



It is used for the manufacture of explosives and as a solvent; sweet to taste; b.p. - 290°C .

glycerol-lacto oleate - an emulsifying agent
glycerol-lacto palmitate - an emulsifying agent
glycerol-lacto stearate - an emulsifying agent
glycine - monoamino-monocarboxylic amino acid



Used to retard rancidity in fat; .01% in fat (total anti-oxidant, 0.02% in combination); 70% as sweet as sucrose

glycogen - $(\text{C}_6\text{H}_{10}\text{O}_5)_x$ (animal starch); is the chief form in

which carbohydrates are stored in the animal body. Made up of glucose units (1 & 4 ∞ linkage); it is stored mainly in the liver and is soluble in cold water

glycolysis - metabolic complex anaerobic conversion of glucose to lactic acid

glycoproteins - a combination of a carbohydrate and a protein; N content is 9-13%

gnocchi - dumplings of cornmeal or potatoes, eggs and parmesan cheese

gnotobiot - organism free from contamination or associated with known organisms; mono- without contaminants; di, tri, poly - organism contains one or more known contaminants

gnotobiotics (Greek: known life) - study of living things by themselves or in association with other known organisms

GNP - see "gross national product"

goat - a hollow-horned ruminant animal; gestation period 150 days (range 142-160)

goat acids - short chain acids which have an animal odor and include caproic, caprylic, and capric

gobby - lumpy in fleshing

gold (Au) - an element; at. no. 79; at. wt. 197.0; m.p. - 1063°C.; S.G. - 19.4; oxidation states +1, +3; electron configuration 2-8-18-32-18-1 orbit K L M N O P

golden delicious - a variety of apples that is in season from October to March; is an excellent eating apple, and fair to good cooking apple

Gooch crucible - is a funnel device with a perforated bottom and is used with suction to filter precipitates

grain per gallon (Br.) - 14.254 parts per million in water
(ppm)(by weight)

grain per gallon (U.S.) -

= 17.118 parts per million in water (ppm)(by weight)

= 142.86 pounds/million gallon

grain (vinegar) - grain = 10 x % acid

50 = 10 x 5% acid

100 = 10 x 10% acid

gram (gramme)(g)(gm) - a measure of weight

1 gram (g) = 1,000 milligrams (mg)

= 980.665 dynes

= 100 centigrams (cg)

= 15.4323561 grains (troy)

= 10 decigrams (dg)

= 5 carats (metric)

= 1 cubic centimeter of water at its
maximum density (4°C.)

= 0.771618 scruples (apoth)

= 0.64301485 pennyweight (dwt)

= 0.5643833 drams (avoir)

= 0.2572059 drams (troy)(ap)

= 0.03527396 avoir ounces (common)(avdp)

= 0.03215074 troy or apothecary ounces

= 2.67923×10^{-3} pounds (troy)(ap)

= 0.00220462 pounds (avoir)

= 0.001 kilograms (kg)

= 1.10231×10^{-6} tons (short)

= 9.842×10^{-7} tons (long)

gram calorie - see "calorie (gram calorie)"

gram-centimeter - a measure of heat, energy and/or work

1 gram-centimeter = 980.5966 ergs

= 0.000072330 foot-pounds

gram-centimeter per second - a measure of power, rate of energy
and heat

1 = 980.5966 ergs/sec

= 9.80665×10^{-5} watts

= 0.00007238 foot-pound/sec.

gram equivalent - atomic weight of an element divided by its
valence

gram per cubic centimeter - (g/cm^3) A measure of density or concentration

- 1 = 1,685.56 pounds per cu.yard ($\text{lb.}/\text{yd}^3$)
- = 1,000 kilograms per cu. meter (kg/m^3)
- = 980.5966 dynes/ cm^3
- = 77.6893 pounds per bushel (U.S.)
- = 62.4283 pounds per cu.foot ($\text{lb.}/\text{ft}^3$)
- = 9.71116 pounds per gallon, dry (U.S.)
- = 8.34545 pounds per gallon, liquid (U.S.)
- = 1.162283 poundals/ in^3
- = 0.036127 pounds per cu.inch. ($\text{lb.}/\text{in}^3$)

gram per liter - a measure of density or concentration

- 1 = 1,000 parts/million (by wt.) in water
- = 58.43 grains/gallon
- = 8.345 pounds/1,000 gallons
- = 0.062427 pounds/cu.foot

gram per square centimeter - a measure of pressure

- 1 gram (per cm^2) = 980.5966 dynes/ cm^2
- = 0.457592 poundals/ in^2
- = 0.014223 pound/ in^2
- = 9.6784×10^{-4} atmospheres

gram per square meter - (g/m^2) weight per unit area

- 1 g/m^2 = 0.029 oz/sq.yd.

Gram's stain - differentiates gram positive from gram negative bacteria by ability to retain crystal violet dye

<u>Negative</u>	<u>Positive</u>
<u>Aerobacter</u>	<u>Clostridium</u>
<u>aerogenes</u>	<u>Staphylococcus</u>
<u>E. coli</u>	<u>Streptococcus</u>
<u>Pseudomonas</u>	
<u>aeruginosa</u>	
<u>Salmonella</u>	
<u>Shigella</u>	

grange - a barn

Granger - a variety of birdsfoot trefoil

granular tapioca - see "flake tapioca"

granulated hominy - see "hominy grits"

grape - fruit of the genus vitis

Storage conditions

Temp.	31°F.	Protein	.7%
Rel. humidity	85-90%	Fat	.4%
Freeze pt.	24-27°F.		

grapefruit - a citrus fruit; 50% edible; .4% protein, .1% fat

grape sugar - see "glucose"

grape (wine) vinegar - made from juice of grapes

Min.: 4% acetic acid
1% grape solids
.13% grape ash

grass - a large group of plants in the order Gramineae

grate - separate food into small pieces

gratin, au - browned cheese covering

gravel - small stones; 1 dry cu.ft. = 95 lbs.

gravimetric analysis - an analysis in which results are based upon weight

gravity - a measure of velocities and accelerations

1 gravity = 980.5966 centimeters per sec per sec.
= 32.1717 ft. per sec per sec.

gravy - cooked meat juice sometimes mixed with flour

grease - fat with a titer of less than 40°C.

grease wool - wool that is shorn from sheep and has not been processed

greater than > - greater than or equal to \geq

greenage - a variety of plum

green bug - an insect that sucks the sap of small grain;

Control: nitrogen in fall, malathion, parathion

green clover worm - an insect whose larva eats leaves of soybean; Control: DDT, toxaphene

greening - a variety of apples that is in season from October to January; are good cooking and sauce apples and fair eating apples

green mountain - a variety of potato

green tea - tea made from leaves that have been steamed, rolled and dried without fermentation

Griess reagent - a mixture of sulfanilic acid and alpha-naphthylamine used to develop color in nitrite determinations; see "nitrite analysis"

grill - to broil

Grimes Golden - a variety of apples that are in season from September to December; are excellent sauce and eating apples, and fair to good cooking apples

grind - to break into small pieces

grits - coarsely ground grain (largely endosperm) from which the bran and germ have been removed

groats - husked oats or wheat

gross national product (GNP) - total market value of the output of final goods and services for a year; can be in either current or constant dollars

ground beef - comminuted skeletal beef; max. 20% fat; see "hamburger"

ground chuck - max. 20% fat

ground glass joints - Standard taper \overline{T} all are a 1:10 taper; first number is diameter (in mm.) of the large end; second number is length of ground zone; (Ex.: \overline{T} 24/40 = 24 mm. in diameter large end of ground zone and ground zone is 40 mm. in length; Ball & socket \overline{S} - first number is ball diameter in mm.; second number is inside diameter of tubing

ground limestone - a liming material composed of 80-95% CaCO_3 and each pound has the neutralizing equivalent of .85 - 1.00 pound of CaCO_3 (or approximately this quantity of dolomitic limestone)

groundnut - see "peanut"

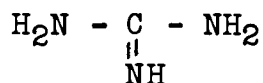
ground steak - max. 20% fat

ground substance - aqueous matter containing connective tissue and surrounding the cell

grub - parasite of cattle; makes holes in the hide in the back area; Control: mixture of 1 part rotenone and 2 parts pyrophyllite

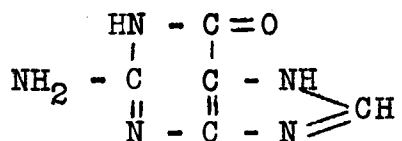
guaiac - an antioxidant used to retard rancidity in fats

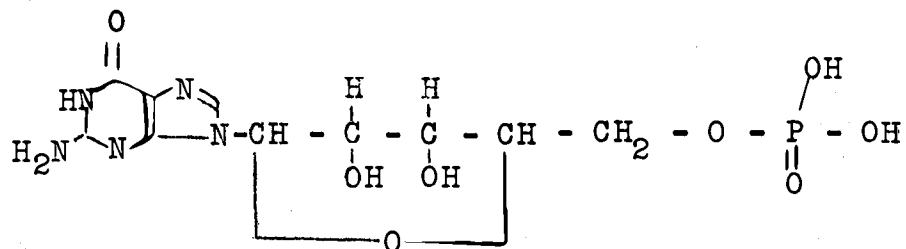
guanidine - found in animal and plant tissue



δ -guanidino- α aminovaleric acid - see "arginine"

guanine - found in animal and vegetable tissue



5 guanosine monophosphate - flavor enhancer

guar gum - a seed gum grown in S.W. - U.S.A.; it is a branched chain molecule with mol. wt. of 200,000 - 300,000; it is used in the food industry as a thickening and binding agent; used as livestock feed.

Guernsey - a dairy type breed of cattle that originated on the island of Guernsey; color is shade of fawn with white markings clearly defined

guinea grade - see "poultry grade"

guinea pig - a rodent Cavia cobaya

gum arabic (acacia) - an exudate gum grown in the Sudan Africa region; is a mixture of Ca, Mg and K salts of arabic acid; used for emulsification in food industry

gum karaya - an exudate gum grown in India; mol. wt. - 9,500,000; used as emulsifier in food industry

gummy - an old ewe with incisor teeth broken or missing

gum rosin - rosin remaining after the distillation of gum spirits of turpentine

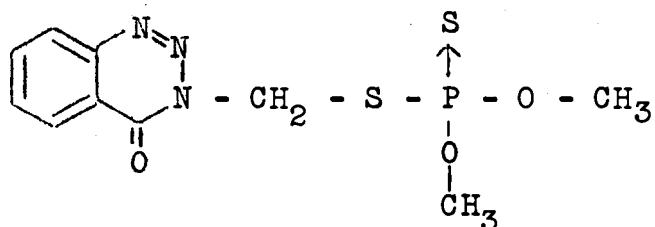
gum spirits of turpentine - spirits of turpentine made from oleoresin gum from a living tree

gum tragacanth - an exudate gum used for emulsions in food industry

guns - see "stitches"

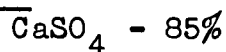
gut bread - pancreas

guthion - a poisonous insecticide



Guzerat - a strain of Brahman cattle

gypsum - a fertilizer material used to supply calcium;



H - see "hydrogen"

ha - see "hectare"

haché - minced

hackamore - rope halter

hackery - ox cart

Hackney - Hackney pony not over 14.2 hands; shown only at
2-trot speeds; park pace, trot on; docked tails; manes
braided close to neck; pulls a viceroy--4-wheeled coach

haddock - see "demersal fish"

hafnium (Hf) - an element; at. no. 72; at. wt. 178.50;
oxidation state +4; electron configuration 2-8-18-32-10-2
orbit K L M N O P

haggerel - see "hoggett"

hairry - a variety of vetch

half-life (half-value) - time required for a substance to lose
half of its radioactivity; time required for half of a
particular tissue to be replaced

halibut - see "demersal fish"

halibut liver oil - obtained by steaming halibut or flounder
livers; rich in vitamin A

halite - rock salt

halogen - a group of compounds of similar chemical nature that
includes fluorine, chlorine, bromine and iodine

halophilic - microorganisms that will grow only if a very high
salt concentration is present; salt loving

ham - hind thigh area of a pork carcass; it may be cut several
lengths depending on desired size of the ham; a short cut
skinned ham is about 18% of the carcass

ham beetle - Corynetes rufipes; larva gets in cured hams

ham, boiled - a deboned and defatted ham is placed in a press
mold; cooked in a water bath of 165°-185°F. to internal
temp. of 142°-150°F.; pressure on ham is increased while
ham is cooling

hamburg - see "hamburger"

hamburger - (hamburg) ground skeletal beef; max. 30% fat; see
"ground beef"

ham curing - regular smoked product - finished smoked weight
will not exceed fresh uncured weight; water added product -
water not in excess of 10% of fresh uncured wt.; must be
so labeled, other curing ingredients are not included in
this 10% so total added substances might be 12-14%

hamlin - a variety of early Florida oranges

Hamprace - see "Montana No.1"

Hampshire (hog) - a meat type breed of hog that originated in Southern England probably from the Norfolk Thin Rind Hog; the hog is black with a 6-inch white belt that encircles the shoulders and includes the 2 front legs

Hampshire (sheep) - a medium-wool, mutton type breed of sheep originating in South-Central England from the Wiltshire and Berkshire Knot breeds; has a dark brown to black face, with no horns and a fleece grade of about $\frac{1}{4}$

ham skipper - an insect that feeds on stored meat and cheese

hamster - rodent, Cricetus cricetus

ham stringing - cutting of the Achilles tendon

hand - measure of horse's height at shoulder; (4 inches)

hank (casing) - see "sheep casing"

hank (cotton) - 840 yards

hank (wool yarn) - 560 yards

hanss - a variety of clingstone peaches

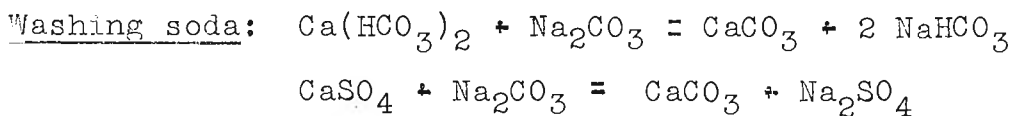
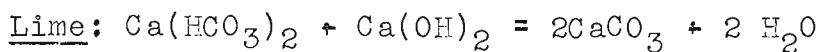
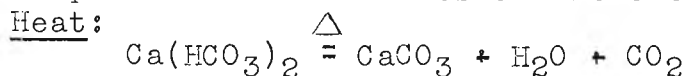
Hanus iodine number - see "iodine value analysis"

hard butter - a processed fat with: high solid fat index, brittle at room temperature, narrow melting range; used in confections

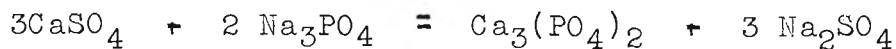
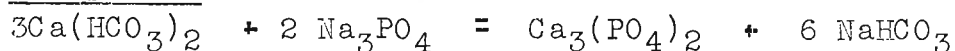
hard coal - anthracite

hard glass - glass with a high melting point, a low coefficient of expansion, and will withstand a great amount of thermal shock

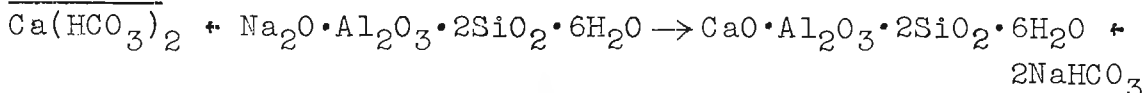
hardness of water - due to the presence of bicarbonates, sulfates, chlorides, and silicates of calcium, magnesium and iron in the water which form insoluble precipitates with soap; a precipitation of the salts can be obtained by the following:



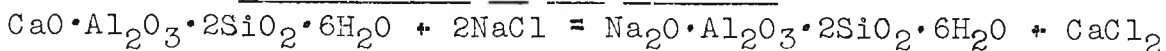
Phosphates:



Silicate:



Regeneration of the silicate



hard-wheat flour - dough made from this flour has a "rubbery" consistency and thus can hold the gas formed so it makes a good bread flour

hare - a rodent with longer ears and legs than a rabbit

haricot - a dish of meat; seed of string bean

haricots, vert - green string beans

harness horse (fine) - 2 gaits: walk, trot; pulls a 4-wheeled vehicle

harness pony - cannot exceed 50 inches in height; a cross between the Hackney, Welsh, and the Shetland; shown pulling a viceroy or small harness buggy; carries a full mane and tail; shown at park trot and drive on or at will

Harris hematoxylin - 1 gram of hematoxylin is dissolved in 10 ml. absolute alcohol; add this to a warm solution of 20 g. ammonia alum in 200 ml. H₂O; boil and add .5 g. mercuric oxide; boil 1 minute and cool rapidly under faucet; just before using, add 4% acetic acid; keeps well

harrow - tool to break up soil

harvest - gather crop

haver - oats

Haversian canals - blood vessel - carrying canals in compact bone

haw - left

hay - mowed and cured grass and clover

hazer - a steer-wrestler assistant who maneuvers the steer into position for the jump

Hb - hemoglobin

He - see "helium"

head cheese - hog head (jaws, eyes, and ears removed), jowl, hearts and tongues are cooked, ground, seasoned and placed in crocks to jell; eaten cold

head cheese and sulze (souce)(souse) - a sausage product made from: meat and/or snouts and/or tongues of hogs, cattle or sheep; contains added gelatin, salt, vinegar, sugar, spices, sodium or potassium nitrate and nitrite; max. of 40% gelatin in finished product

heart - the fibers are: branched, multinucleated, small in diameter and contain intercalated discs;

blood flow:

- | | |
|------------------------------------|-------------------|
| 1. extremities | 6. lungs |
| 2. superior and inferior vena cava | 7. pulmonary vein |
| 3. right auricle | 8. left auricle |
| 4. right ventricle | 9. left ventricle |
| 5. pulmonary artery | 10. aorta |
| | 11. extremities |

<u>heart beat</u> -	<u>resting rate</u>
horses	35-40/min.
oxen	40-60/min.
hogs	55-75/min.
sheep	60-80/min.
goats	60-80/min.

heat - a period of sexual excitement that occurs in cycles;
see "gestation period" for time interval for animals

heat indications - 1. nervousness
2. bellowing
3. drop in milk
4. riding or being ridden
5. discharge of mucous
6. vulva red and swollen

heavy calf skin - a calf skin weighing between 9 and 15 pounds

heavy cow hide - a cow hide weighing over 53 pounds

heavy steer hide - a steer hide weighing more than 58 pounds

heavy water - deuterium, D₂O

hectare (ha) - a measure of surface area

1 ha = 107,638.7 sq. feet (sq.ft.)
= 15,499,969 sq. inches (sq.in.)
= 11,959.95 sq. yards (sq.yd.)
= 10,000 sq. meters (m²)
= 2.47106 acres (Br.)
= 2.47104 acres (A)(U.S.)
= 0.01 sq. kilometers (km²)
= 0.003861 sq. miles statute

hecto- - (one hundred times) 100; prefix for quantities larger than the base unit

hectogram (hg) - a unit of metric weight

1 hectogram = 100 grams
= 10 dekagrams (dkg)
= 3.527 ounces (avoir)

hectoliter (hl) - a unit of metric volume

1 hectoliter = 100 liters
= 10 dekaliters
= 2.838 bushels (U.S.)

hedging - reducing the risk of taking a loss, offsetting an existing risk by taking the opposite position on another risk that is likely to move in the same direction

hedonic - pleasure

heel flies - see "ox warbles"

heel of round - a boneless roast made from the area to the rear of the stifle joint; the round muscles are considerably smaller in this area and, therefore, it contains much connective tissue

heifer - bovine female that has not produced a calf; desirable age at time of first breeding:

Jersey	16 mo.
Guernsey	18 mo.
Ayrshire	19 mo.
Holstein	20 mo.

Height Equivalent to a Theoretical Plate (HETP) -

$$\text{HETP} = \frac{\text{column length (cm. or in.)}}{\text{number of theoretical plates}}$$

helianthin - see "methyl orange"

helium (He) - an element; at. no. 2; at. wt. 4.003; oxidation state 0; electron configuration 2 orbit K

hematoxylin - see "Harris' hematoxylin"; "iron hematoxylin"; a blue stain ($\text{C}_{16}\text{H}_{14}\text{O}_6 + 3 \text{H}_2\text{O}$) containing coloring matter of logwood

hemi - prefix for $\frac{1}{2}$

hemoglobin - O_2 carrying red pigment of blood

hemopoiesis - process by which blood cells are formed

hemorrhagic septicemia - see "shipping fever"

hemp - a vegetable fiber composed primarily of cellulose

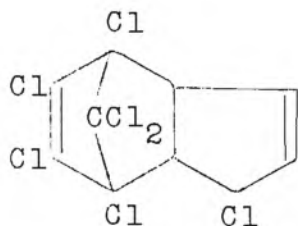
hen - mature female bird 1 year or older

henry - a measure of inductance; 1 henry will induce a counter emf of 1 volt when current changes at the rate of 1 ampere per second

heparin - a complex carbohydrate acid that is an anticoagulant for blood; it is prepared (isolated) from liver and lungs; 1 International Unit (World Health Organization) = 1 U.S.P. unit

hepta- - prefix for 7

heptachlor - a poisonous chlorinated organic insecticide



herb - plant whose seed, stems, leaves or roots are used for seasoning food; may be annual, biennial or perennial; most belong to the following families:

Boraginaceae - borage family
 Compositae - aster family
 Cruciferae - mustard family
 Labitae - mint family
 Liliaceae - lily family
 Umbelliferae - parsley family

herbe royale - see "basil"

herbicide - weed killer

herds grass - see "redtop"

Hereford (cattle) - breed of beef cattle that are red with a white face and underline; have horns that curve outward and downward; origin - Hereford, England; originally imported to America - Henry Clay, Lexington, Ky.; also see "Polled Hereford", "Double Standard Polled Hereford", and "Single Standard Polled Hereford"

Hereford (hogs) - a breed of meat type hogs that are red with white faces and underlines

Hereford and Aberdeen-Angus cross - see "Aberdeen-Angus-Hereford cross"

herring - see "pelagic fish"; % fat varies tremendously with the season of the year

hesperidium - a subdivision of simple fruit; it has a fleshy ovary wall enclosing one or more seeds, attached to a fleshy placenta and has a leathery rind; e.g., citrus fruit

Hessian fly - insect that damages the central shoot of small grain; Control: sow late in fall

hetero- - dissimilar

heterocyclic - organic compounds having a closed ring structure and having atoms other than carbon in the ring

HETP - an organic phosphorus insecticide containing 10-20% TEPP; see "Height Equivalent to a Theoretical Plate"

hexa- - prefix for 6

hexadienoic acid - see "sorbic acid"

hexamethaphosphate (calgon) - cleaning agent that has excellent calcium sequestering power; magnesium lowers this sequestering power on calcium; it is unstable under high temperatures and high alkaline conditions; see "phosphate"

hexose - 6-carbon sugar

Hf - see "hafnium"

Hg - see "mercury"

hide - skins from animals; (cattle hides weigh over 30 pounds after curing, skins under 30 pounds)

higher market - see "market higher"

high grade - see "grade"

high roller - a horse that leaps high in the air when bucking

hilus - opening in the capsule of an organ through which the blood vessels and tubes pass

hind quarter - the rear portion of a beef carcass that is usually separated between the 12th and 13th rib; it is approximately 48% of the side; it contains the following wholesale cuts: round, rump, loin end, short loin, flank, kidney, and suet

hind saddle - a wholesale cut of veal or lamb consisting of all behind the 12th rib; the two quarters are not split

hind shank bones - made up of tibia and fibula (small) bones

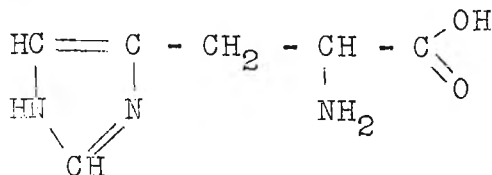
hinny - hybrid animal from a stallion and jennet mating

hip bone - see "ilium"

hip joint - femero-pelvic joint; there is a strong central ligament attachment

hip loin - see "loin end"

histidine - a basic amino acid



histogram - a graphical presentation of a frequency distribution table

histology - a microscopic study of tissue

histone - a simple protein which is strongly basic, coagulable by heat, soluble in water, dilute acids, or alkalis, but insoluble in dilute ammonia

Ho - see "holmium"

hock - horse--a large joint $\frac{1}{2}$ -way down hind leg

hock joint - tibia-tarsal joint

hog - swine, 120 lbs. or over in weight, either sex

hog bung - see "casing (hog bung)"

hog dressed - lamb carcass with the head and pelt left on but with feet and viscera removed; see "hog style"

hogget - a yearling male sheep that has never been shorn

hog grades - (1968)

U.S. #1	proper finish
U.S. #2	excessive finish
U.S. #3	overfinish
U.S. #4	extremely overfinished
Utility	underfinished and low quality

hogshead (hhd.)(U.S.) - a measure of tobacco; (burley) approx.
950 lbs.

1 hogshead = 238.48 liters
= 63 gallons (U.S.); also sometimes from
100 to 140 wine gallons
= 8.42184 cubic feet

hog style - method of dressing veal; the skin is left on the
carcasses

Holland - an American class of chickens that lays a light
colored egg; varieties - White, Barred

holmium (Ho) - a rare earth element; at. no. 67; at. wt. 164.94;
oxidation state +3; electron configuration 2-8-18-29-8-2
orbit K L M N O P

holsteiner - a farmer sausage with ends tied together

Holstein - see "Holstein-Friesian"

Holstein-Friesian - a dairy type breed of cattle that originated
in Northern part of The Netherlands; commonly called
Holstein in North America and Friesian in other countries;
color is black and white areas clearly defined

hominy - lye hominy--made from dry corn kernels that have
pericarp and germ removed by caustic soda; pearly hominy -
corn kernels that have been hulled and degermed

hominy grits - granulated product made from hulled corn;
may be coarse, medium or fine

homo- - similar or same

homogenization - making an emulsion

homologous series - a series of organic chemicals which differ
only by a CH_2 group

honey - plant nectar and saccharine which has been collected
and modified by the honey bee (Apis mellifica and A.
dorsata); contains: not more than 8% sucrose (normally
2% sucrose)(range $\frac{1}{2}$ - 8%); not more than 25% water (av. 18%)
not more than .25% ash (av. .18%)
0-10% dextrin
65-80% dextrose and levulose

1 cup honey can be substituted by $1\frac{1}{4}$ cups sugar and $\frac{3}{4}$ cup liquid

honeycomb - hexagonal cells built by honeybees; see "reticulum"

honeydew melon - white muskmelon

honey loaf - meat loaf that contains a minimum of 5% honey

honeysuckle - when eaten by cattle, will give an off-flavor to milk

hoof and mouth disease - see "foot and mouth disease"

hooks - points of the hips

hop - Humulus lupulus, flower used in beer production

hop clover - an annual early spring growing grass

horehound (hoarhound) - a weedy-looking perennial herb

Hopkins-Cole Test - a test for the tryptophane radical or protein containing this radical; a purplish color is developed when this radical is treated with a magnesium glyoxylate reagent

hormone - a substance secreted from an endocrine gland; it exercises specific control over the conduct, character and development of the body;

(sex) hormones:

	<u>Male (androgens)</u>	<u>Female (oestrogens)</u>
natural	testosterone androsterone	oestradiol oestrone progesterone
synthetic		stilbestrol hexoestrol

hors d'oeuvre - appetizer

horse - a male animal of equine family

horsefly - (gadfly); family Tabanidae of flies that sucks the blood of animals

horse mule - male mule

horsepower (boiler) - = 33,479 British thermal units per hour
= 9.803 kilowatts

horsepower (metric) (cheval vapeur) (75 kg-m/sec) - a measure of power, rate of energy and heat

1 = 735.448 watts (10^7 ergs/sec)
= 542.475 foot-pounds per second (ft-lb/sec)
= 75 kilogram meters per second (kg-m/sec)
= 0.98632 U.S. horsepower (550 ft-lb/sec)
= 0.73545 kilowatt (kw)
= 0.69718 Btu/sec (thermal units per sec)
= 0.17569 kg-cal/sec (thermal units per sec)

horsepower (U.S.) (550 ft-lb/sec) (h.p.) - a measure of power, rate of energy and heat

1 = 33,000 foot-pounds per min.
= 2545.08 Btu (mean)/hour
= 745.650 watts (10^7 ergs/sec)
= 550 foot-pounds per second (ft-lb/sec)
= 76.0404 kilogram meters per second (kg-m/sec)
= 42.4176 Btu/min.
= 10.688 kg-cal(mean)/min.
= 1.01387 metric horsepower (75 kg-m/sec)
= 0.74565 kilowatt (kw)
= 0.70685 Btu/sec (thermal units per sec)
= 0.17812 kg-cal/sec (thermal units per sec)
= 7.457×10^{-9} ergs/sec

horsepower-hour (75 kg-m-hr) (metric) - a measure of heat, energy, work

1 metric horsepower-hour = 2,647,610 joules (10^7 ergs)j
 = 1,952,910 foot pounds (ft-lb)
 = 270,000 kilogram meters (kg-m)
 = 2,509.83 Btu (thermal units)
 = 632.467 kg-cal (thermal units)
 = 0.98632 U.S. horsepower-hours (hp-hr)
 = 0.73545 kilowatt hours (kw-hr)

horsepower-hour (U.S.) (hp-hr) - a measure of heat, energy, work

1 U.S. hp-hr = 2,684,340 joules (10^7 ergs)j
 = 1,980,000 foot pounds (ft-lb)
 = 273,745 kilogram meters (kg-m)
 = 2,544.65 Btu (thermal units)
 = 641.240 kg-cal (thermal units)
 = 1.01387 metric horsepower-hours (75 kg-m-hr)
 = 0.74565 kilowatt hours (kw-hr)

horseradish - condiment made from the root of Armoracia
lapathifolia

horse-shoe sausage - see "holsteiner"

hot dog - frankfurter

hotel rack - see "rib rack"

hothouse lambs - 30 to 60-pound lambs (6 to 10 weeks old) dropped between Oct. and Jan. and sold between Christmas and Easter; Grades: Extra Fancy, Fancy, Good, Fair, Plain; usually hog dressed and the pluck and liver is usually left in the carcass

hot salt cure - a meat curing procedure using saltpeter, sugar and hot salt

hubbard - a winter variety of squash

humane slaughter - all animals are rendered insensible to pain by: a single blow, gunshot, electrical, chemical or other means that is rapid and effective before being shackled, hoisted, thrown, cast, or cut; or loss of consciousness by anemia of the brain caused by simultaneous severance of the carotid arteries with a sharp instrument

humerus - upper fore arm bone between scapula and ulna

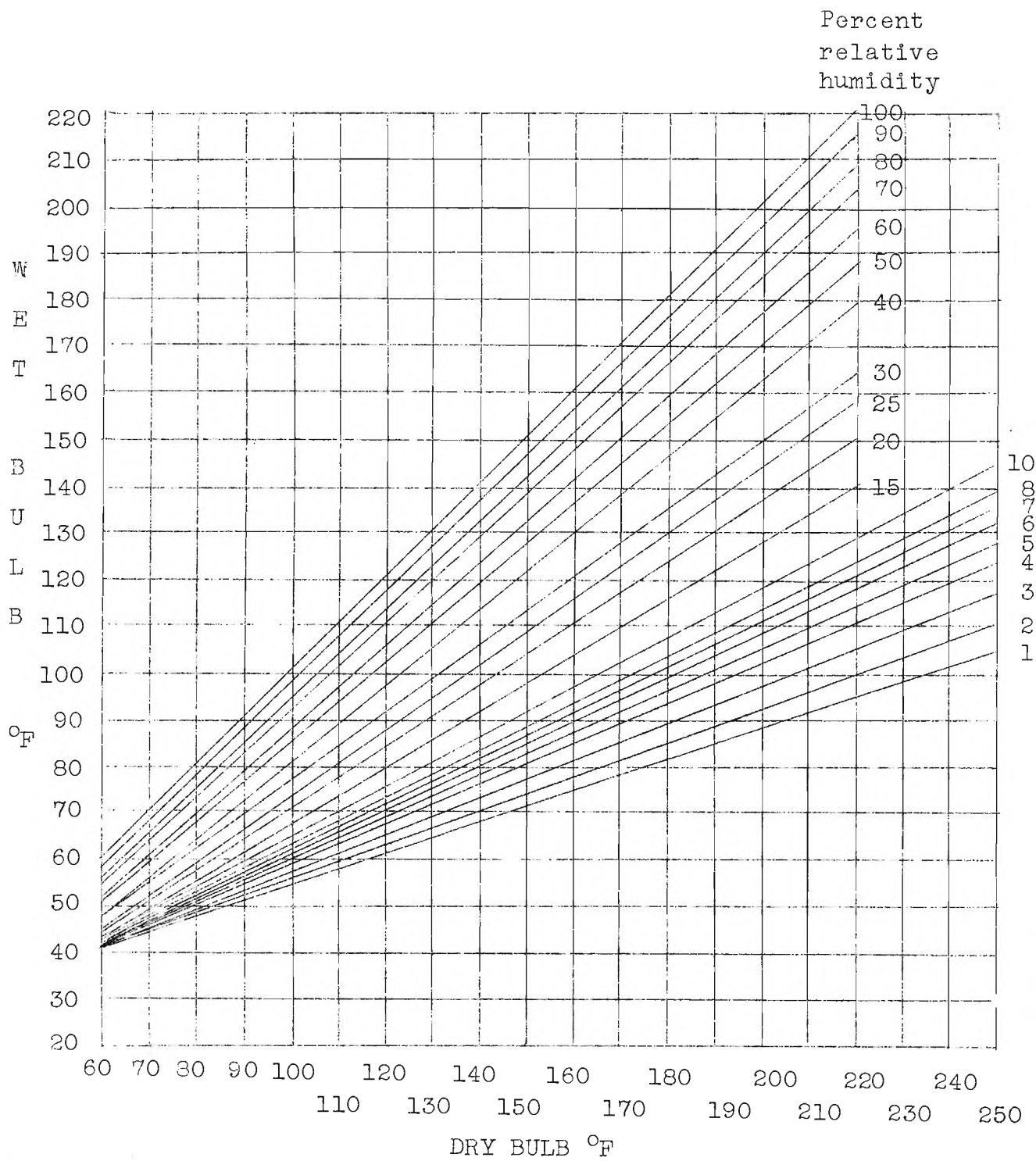
humidity - degree of moisture;

absolute humidity - grains/cu.ft.

relative humidity - % of moisture in a gas compared to saturated (100%) gas

(cont'd on next page)

humidity (cont'd)



Humlies - early Scotch black polled cattle
humus - bacterial decomposed vegetable matter
hundredweight (U.S.) - a measure of weight

1 hundredweight (long) = 112 lbs.
 = 50.8024 kg.
 = 8 stone
 = 4 quarters
 = 0.05 long ton

In units of
a long ton

1 hundredweight (cwt)(short) = 100 pounds (avoir)
 = 45.36 kilograms
 = 0.05 ton (short)
 = 0.04464 ton (long)

In units
of a
short ton

Hungarian pepper - see "paprika"

hunter style - see "chasseur"

husk - leaves enveloping corn, kernels or seed especially when
dry and membranous

hybrid - the offspring of a cross between different species,
varieties and genera

hydrated lime $\text{Ca}(\text{OH})_2$ - a liming material composed of 65%

CaO , 10% MgO , and each pound has the neutralizing equivalent
of 1.2 to 1.35 pounds of CaCO_3 (or approx. this quantity
of dolomitic limestone)

hydrates - crystalline products made up of salts and water
molecules; e.g., $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$; $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$

hydration numbers - is the average relative amount of water
carried by an ion of one element or a group compared to
the amount carried by another; it varies with concentration--
the higher the hydration number, the slower the ion moves

hydride - a compound in which hydrogen is negative (or negative
hydrogen H^-)

hydro- - prefix meaning water

hydrocarbon - a chemical compound that contains only carbon
and hydrogen

hydrochloric acid (HCl)(muriatic acid)(spirits of salts) -

Mol. wt. 36.47; Eq. wt. 36.47;

Commercial strength:	Mole/l	g/l	% by wt.	Specific gravity	Normality
-	-	-	38	1.188	12.4
11.6	424	36	1.18	-	-
2.9	105	10	1.05	-	-

Ml. of 35-37% HCl to dilute to 10 l. Approx. Normality

8.9	.01
17.8	.02
89.0	.10
445.0	.50
890.0	1.00

hydrocyanic acid - see "hydrogen cyanide"

hydrogen (H) - an element; at. no. 1; at. wt. 1.0080;
oxidation states +1, -1; electron configuration 1
orbit K

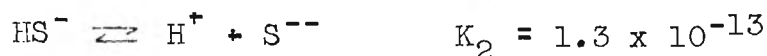
hydrogenation - is the saturation or hardening of fats by
adding hydrogen to the double bond with the aid of
heat, pressure and a catalyst; e.g., catalyst - sodium
methoxide or finely divided nickel

hydrogen cyanide ($\text{HC}\equiv\text{N}$) - used as a fungicide, insecticide

hydrogen ion - H^+

hydrogen peroxide - H_2O_2 , used to remove color in tripe; must
be rinsed off

hydrogen sulfide (H_2S) - weak dibasic acid



hydrolyzed poultry feathers - a product obtained from treatment
under pressure of feathers from slaughtered poultry;
crude protein must be 70% digestible protein

hydrometer - floating device to determine specific gravity

hydronium ion (H_3O^+) - H^+ ion attached to one water molecule

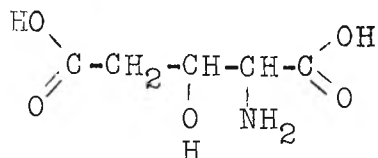
hydrophilic - water-loving

hydroxide ion - OH^-

β -hydroxyalanine - see "serine"

β -hydroxy- α -amino-butyrac acid - see "threonine"

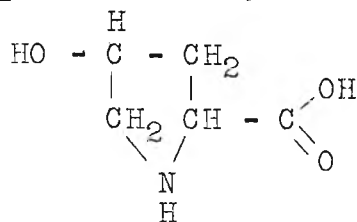
hydroxyglutamic acid - a monoamino-dicarboxylic amino acid



hydroxyl group - $-\text{OH}$

p-hydroxyphenylalanine - see "tyrosine"

hydroxyproline - a heterocyclic amino acid



hygiene - science of public health and prevention of disease

hygro - prefix denoting moisture

hyper- - above or over

hypo - sodium thiosulphate

hypo- - under

hypochlorite ion - ClO^-

hypoglycemia - a low concentration of blood sugar; normal blood sugar level in man is .07 to .10 percent

hypotenuse - the long side of a right triangle;

$$(\text{hypotenuse})^2 = (\text{side})^2 + (\text{side})^2$$

I - see "iodine", see "ampere", see "current"

-ic - highest valence, higher than -ous

ice - solid state of water, specific gravity 0.92; 1 cu.ft. = 56 lbs

iceberg - a variety of head lettuce

ice cream - frozen confection

icing - coating for cakes

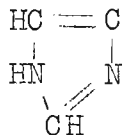
Idaho potato - see "Russett Burbank"

-ide - suffix for binary compounds

iliacus - a muscle of the hind quarter that runs across the inner face of the ilium

ilium - (hip bone) a triangular portion of the pelvic (hip) bone that articulates with the spine and directs a shaft downward and to the rear; called hip bone, pin bone

imidazole -



β -imidazole-alanine - see "histidine"

In - see "indium"

in-breeding - mating of very closely related animals

inch (British) - a measure of length; 1 in. = 2.539998 cm.

inch (in.)(U.S.)(1") - a measure of length

1 in. = 2.5400 x 10⁸ angstrom
 = 25400.0508 micron
 = 1,000 mils
 = 72 points (Printer's type)
 = 25.4000508 millimeter (mm)
 = 6 picas (Printer's type)
 = 2.54000508 centimeters (cm.)
 = 0.08333 feet (ft.)
 = 0.02778 yard (yd.)
 = 0.02540 meter (m)
 = 0.005051 rod (rd.)
 = 0.00002540 kilometer (km)
 = 0.0000157828 statute mile
 = 0.00001371 U.S. nautical mile
 39.37 in. = 1 meter
 12 in. = 1 foot
 7.92 in. = 1 link

inch-column of mercury (Hg. 13.59593 sp g) - a measure of pressure

- 1 = 70.7310 pounds per sq. foot (psf)
- = 25.4001 millimeters (columns of mercury, Hg. 13.59593 sp g)
- = 1.13299 feet (columns of water, max. density at 4C, 39F)
- = 0.49119 pounds per sq. inch (psi)
- = 0.34534 meters (columns of water, max. density at 4C, 39F)
- = 0.03453 kilograms per sq. centimeter (kg/cm²)
- = 0.034 bars
- = 0.03342 atmospheres, standard (760 mm)

inch-column of water (4°C) - a measure of pressure

- 1 = 5.2022 pounds/foot
- = 2.4583 x 10⁻³ standard atmospheres
- = 0.57802 ounces/sq. inch
- = 0.074 inches of mercury at 0°C
- = 0.03613 pounds/sq.in.

incisor - front teeth

Indian cattle - see "Brahman"

Indian corn - (Zea mays) called corn in U.S., maize

Indian rice - see "wild rice"

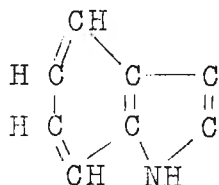
indicator (chem.) - substances which show a physical change (usually color) when a reaction has taken place without having any effect on this reaction

indigo - a blue coloring substance (C₁₆H₁₀N₂O₂) derived from a vegetable and is used to color food

indium (In) - an element; at. no. 49; at. wt. 114.82;

oxidation state +3; electron configuration 2-8-18-18-3
orbit K L M N O

indole -



indolealanine - see "tryptophane"

inductance - property which resists change in a current through it and is measured in henrys

inductor - an electrical coil used to resist change in current

inferior - see "caudal"; also means beneath, below, or lower

infinity (∞) - largest possible quantity

infra- - beneath

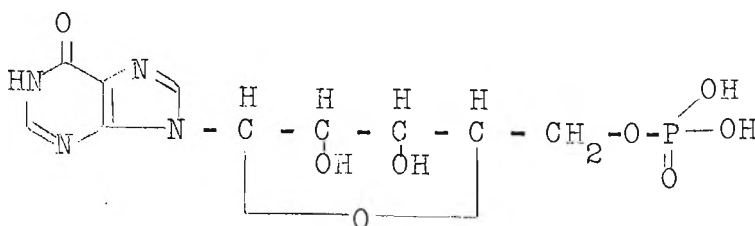
infrared - wavelength of radiation longer than visible red;
over 7500 - 8000 A° wavelength

infraspinatus - a muscle of the chuck that is located laterally
to the scapula and below the spine of the scapula

innominate bone - see "ossa coxarum"

inorganic - chemistry of mineral origin (not carbon)

5-inosine monophosphate - flavor enhancer



inositol - growth factor $\text{C}_6\text{H}_6(\text{OH})_6$

insecticide - a chemical used to destroy insects

insemination time - should be done just prior to ovulation

mare - last half of heat period

sow - mid point of heat period

ewe - last day of heat period

cow - last half of heat period

insertion - movable (bone that moves) attachment of a muscle

inside chuck (bottom chuck) - muscle medial to the scapula
of which the major ones are teres major, subscapularis,
scalenus dorsalis, serratus ventralis, spinalis dorsi,
complexus, longissimus dorsi, and longissimus costarum;
see "bottom chuck"

inside round (top round) - made up of semimembranosus, adductor
and gracilis muscles

in situ - in an undisturbed or normal position

insulin - a drug isolated from the pancreas and used to treat
diabetes; controls sugar metabolism

integer - whole number

inter- - between

intercostal muscle - two layers of muscle between the ribs

interesterification - a procedure for changing the arrangement of the fatty acids on the glycerin molecule; Advantages - more plastic range, better consistency, and higher solid content; dry heat - 110 to 200°F

internal abdominal oblique - the inside sheet of muscles of the flank whose fibers point downward and forward

International Union of Chemistry - group which recommends nomenclature for organic compounds

intertransversales - muscle that connects adjacent transverse processes

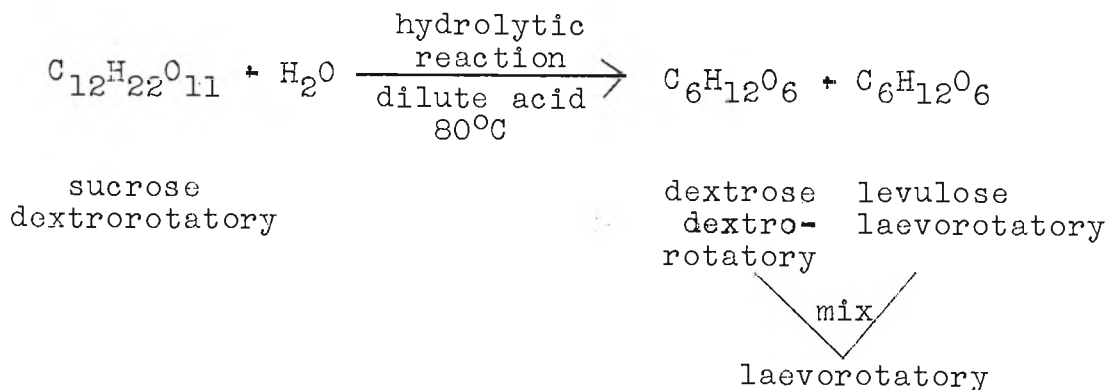
intervertebral discs - cartilage discs between vertebrae

intestinal fat - see "killing fat"

intra-, (intro-) - within

in vacuo - in a vacuum or a space without air

invert sugar - found in fruits, honey or formed as follows:



invert sugar syrup - made by hydrolysis of sucrose

in vitro - in glass; a reaction carried on in a test tube as opposed to one carried on in a living organism (in vivo)

in vivo - in living matter; a reaction carried on in living matter as opposed to one carried on in a test tube (in vitro)

iodine (I) - an element; at. no. 53; at. wt. 126.91;

oxidation states +1, +5, +7, -1;

electron configuration 2-8-18-18-7

orbit K L M N O

deficiency - goiter; body function - essential to thyroid gland; in thyroxin; varies in food depending on its origin; in seaweed, seafoods, and in some water supplies; in iodized table salt;

tincture of iodine - iodine in an alcohol solution

iodine number - tells the degree of unsaturation of a fat (larger the number, the greater the unsaturation); it is expressed as the percentage of iodine by weight that fat will absorb

<u>Fats</u>	<u>I₂ #</u>
Butter	22-45
Coconut oil	6-10
Corn oil	103-130
Cottonseed	104-114
Lard	46-70
Linseed	107-202
Oils range	80-200
Peanut oil	84-100
Poultry fat	66-71
Soybean	120-141
Tallow	35-55

iodine value analysis - is the grams of iodine absorbed by 100 grams of fat and is a measure of the unsaturation of this fat; it is determined by adding iodine monobromide to fat-- the excess iodine is titrated with standard sodium thio-sulfate and calculated as percent by weight of iodine absorbed and reported as iodine number

iodized salt - added potassium or sodium iodine;

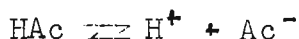
usual quantity .01% KI; small amount of magnesium carbonate for free running properties

iodoform - CHI₃; an antiseptic

ion - a positive or negative charged atom or molecule

ionization - neutral atoms or molecules obtaining a positive or negative charge

ionization constant (K₁) - is the reaction



$$\text{is } K_1 = \frac{(\text{H}^+)(\text{Ac}^-)}{(\text{HAc})} \quad \text{all in moles/liter}$$

iota (I, ι) - Greek letter with an English equivalent of i

Ir - see "iridium"

iridium (Ir) - an element; at. no. 77; at. wt. 192.2;

oxidation states +3, +4; electron configuration 2-8-18-32-15-2
orbit K L M N O P

Irish cobbler - an all-purpose variety of potato

Irish moss - see "carrageenan"

Irish potato - a vegetable whose stem tuber is used as food;
see "potato, Irish"

iron (Fe) - an element; at. no. 26; at. wt. 55.85;

electron configuration 2-8-14-2; oxidation states +2, +3
orbit K L M N

body function - in hemoglobin, cytochrome, catalase, peroxidase

Foods:

<u>High in iron</u>	<u>Low in iron</u>
peas, beans, leafy green vegetables, meat, fish, egg yolk	white flour, fruits, milk, egg white

iron - a variety of cowpeas

iron-hematoxylin -

Solution I

ammonio-ferric sulphate	2.5 g
distilled water	100 ml

Solution II

hematoxylin	0.5 g
dissolve in 95% alcohol	10 ml
add distilled water	100 ml

ischium - posterior portion of the pelvic bone; joins the ilium
at the cavity for the head of the femur; the aitch bone
area of the pelvis bone; called pin bone

iso- - prefix meaning equal

iso-ascorbic acid - see "ascorbic acid"

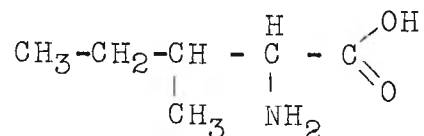
isocyanide - see "carbylamine"

isodrin - an isomer of aldrin

isoelectric point - pH at which the net charge is zero and
there is no migration in an electric field; also the
pH of minimum solubility

isolated soy protein - 2% can be used as a binder in meat
products; 97% av. protein on a dry basis (min. 90%);
insoluble in water at its isoelectric pt.; ash 4.5%,
sodium 1.7%, crude fiber 0.3%

isoleucine - a monoamino-monocarboxylic amino acid



isomerism - compounds which have the same elements in the same proportions by weight but different structure and properties; see "structural isomerism", see "stereoisomerism"

isonitrile - see "carbylamine"

isotope - an element with a different number of neutrons in its nuclei (different atomic mass) but will usually have the same chemical properties

Italian - a variety of plum; also see "ryegrass"

-ite - suffix meaning salt of the acid

I.U. - International Units

I.U.C. - see "International Union of Chemistry"

jack - a male ass

Jackson - a variety of soybean

jaffa - a variety of midsummer Florida orange

jam - a jel of fruit (often berries) preserve; jel caused by reaction of acid (pH 2.5-3.5) with pectin ($\frac{1}{2}$ -1%) and sugar (opt. 67%); fruits cooked in sugar until soft and jelly-like ($\frac{3}{4}$ to $\frac{5}{4}$ lbs. sugar/lb. fruit)

Japanese - a variety of millet

jardinière - fresh vegetables

Java - an American class of chicken that lays a brown shelled egg;

<u>Varieties</u>	<u>Plumage color</u>	<u>Shank</u>	<u>Beak</u>
Black	greenish black undercolor black	black to yellow	black
Mottled	black mottled with white, undercolor slate	blue to yellow	yellow

a variety of coffee

jelly - a colloidal suspension (usually fruit flavored) that has gelled; made from pectin, agar, or gelatin

jennet - a small horse

jenny - a female ass

jerked beef - meat cut in strips and hung to dry

jerky - see "jerked beef"

Jersey - a dairy type breed of cattle that originated on the island of Jersey; color - shades of fawn with or without white markings; give rich milk

Jersey Giant - the largest of American class of chickens and lays a brown shelled egg;

<u>Varieties</u>	<u>Plumage color</u>	<u>Shank</u>	<u>Beak</u>
Black	blackish green, undercolor - slate	black to yellow	black to yellow
White	white	green to yellow	yellow

Jersey Red - a breed of red hogs that contributed to the Duroc breed

Jerusalem artichoke - a vegetable whose stem tuber is used as food

jigger - holds $1\frac{1}{2}$ ounces

jimson weed - a poisonous plant

K - see "potassium"; see "kilohm"; see "karat"; see "kelvin"

K_A - see "dissociation constant"

kainite - a neutral fertilizer material; contains potassium chloride KCl, magnesium sulfate MgSO₄; 0-0-20

kale - a vegetable whose leaf is used as food

kappa (K,k) - Greek letter with an English equivalent of k

karakul - a broadtail breed of sheep whose greatest value is for young lamb pelts that are used for fur

karat (K or Kt.)(carat) - a measure of purity; pure gold is 24K; e.g., 18K - 18/24 of the weight consists of pure gold

karaya - see "gum karaya"

kc - kilocycles/second

Kelvin (K) - see "absolute temperature"; $K = C + 273.15$

kenland - a variety of red clover

Kentucky 31 - a variety of fescue

Kentucky bluegrass - a variety of bluegrass

kemp - coarse hair or dead fibers or white fibers found in wool usually from the outer thighs and crotch area; it will not take dye

kench - a container used for salt curing

kephalin - see "cephalin"

kerasin - a glycolipid which on hydrolysis yields galactose, sphingosine and lignoceric acid

keratin - principal protein in wool, hair, hooves, horns, nails, and outer layer of epidermis; some of its amino acids are: arginine, aspartic acid, cystine, glutamic acid, lysine, tryptophan and tyrosine

keratinization - production of a horny layer

kerosene (kerosine) - oil obtained from distillation of petroleum and from oil shale; 1 gal. = 7 lbs.

Kerry - an Irish dairy type breed of small black cattle

ketone -
$$\begin{array}{c} R' - C - R \\ \parallel \\ O \end{array}$$

organic compound in which two alkyl groups are attached to a carbonyl group; I.U.C. - replaces e on hydrocarbon name with -one and a number is added to indicate position of carbonyl group

kettle-rendered lard - lard rendered in a steam jacketed kettle

kid leather - leather made from goat skins

kidney - this organ excretes liquid waste products of metabolism and is found in a fatty deposit

kidney bean - Phaseolus vulgaris bean

kieserite - see "magnesium sulfate"; $\text{MgSO}_4 \cdot \text{H}_2\text{O}$

killing fat - fat from the intestinal area usually used in making soap

kilo- - (one thousand) 1,000; prefix for quantities larger than the base unit

kilo-calorie - (large calorie), thermal units (kg-cal), a measure of heat, energy, work

$$\begin{aligned}
 1 \text{ kg-cal} &= 4.186 \times 10^{10} \text{ ergs} \\
 &= 4,186.17 \text{ joules } (10^7 \text{ ergs}) \text{ j} \\
 &= 3,087.77 \text{ foot pounds (ft-lb)} \\
 &= 1,000 \text{ gram calories or small calories} \\
 &= 426.900 \text{ kilogram meters (kg-m)} \\
 &= 3.968,32 \text{ Btu (thermal units)} \\
 &= 0.001581 \text{ metric horsepower-hour } (75 \text{ kg-m-hr}) \\
 &= 0.001559 \text{ U.S. horsepower-hour (hp-hr)} \\
 &= 0.001163 \text{ kilowatt hour (kw-hr)}
 \end{aligned}$$

also see "Calorie"(C)

kilo-calorie per second - thermal units per second (kg-cal/sec) a measure of power, rate of energy and heat

$$\begin{aligned}
 1 \text{ kg-cal/sec} &= 4,186.17 \text{ watts } (10^7 \text{ ergs/sec}) \\
 &= 3,087.77 \text{ foot-pounds per second (ft-lb/sec)} \\
 &= 426.900 \text{ kilogram meters per second (kg-m/sec)} \\
 &= 5.69200 \text{ metric horsepower } (75 \text{ kg-m/sec)} \\
 &= 5.61412 \text{ U.S. horsepower } (550 \text{ ft-lb/sec)} \\
 &= 4.18617 \text{ kilowatt (kw)} \\
 &= 3.96832 \text{ Btu/sec (thermal units per sec)}
 \end{aligned}$$

kilogram (kg)(K.G.)(kilo) - a measure of weight

- 1 kilogram (kg) = 1×10^6 milligrams
 = 15,432.35639 grains (gr.)
 = 1,000 grams (10^3 g)
 = 771.6178 scruples (Apoth)
 = 643.01485 pennyweight (dwt)
 = 564.38332 drams (avoir)
 = 257.20594 drams (troy)(ap)
 = 35.27396 avoir ounces (oz av)
 = 32.150742 troy ounces (oz t) or apothecary
 = 10 hectograms (hg)
 = 2.6792285 troy pounds (lb t) or apothecary
 = 2.204622341 avoir pounds (lb av) avdp
 = 1 liter or cu decimeter (dm^3) of water
 at 4°C (at 45° Lat. and sea level)
 = 0.001102 net-short tons (2,000 lb)
 = 0.001 metric tons (1,000 kg)
 = 0.0009842 gross-long tons (2,240 lb)

kilogram-meter (kg-m) - a measure of heat, energy, work

- 1 kilogram-meter (kg-m) = 9.80597 joules (10^7 ergs)(j)
 = 7.23300 foot pounds (ft-lb)
 = 0.009296 Btu (thermal units)
 = 0.002342 kg-cal (thermal units)
 = 0.000003704 metric horsepower-
 hours (75 kg-m-hr)
 = 0.000003653 U.S. horsepower-
 hours (hp-hr)
 = 0.000002724 kilowatt hours (kw-hr)

kilogram meter per second (kg-m/sec) - a measure of power,
 rate of energy and heat

- 1 = 9.80597 watts (10^7 ergs/sec)
 = 7.23300 foot-pounds per second (ft-lb/sec)
 = 0.01333 metric horsepower (75 kg-m-sec)
 = 0.01315 U.S. horsepower (550 ft-lb/sec)
 = 0.009806 kilowatt (kw)
 = 0.009296 Btu-sec (thermal units per sec)
 = 0.002342 kg-cal/sec (thermal units per sec)

kilogram per cubic meter kg/m^3 - a measure of density

- 1 = 1.68556 pounds per cubic yard (lb/yd^3)
- = 0.07769 pounds per bushel (U.S.)
- = 0.06243 pounds per cubic foot (lb/ft^3)
- = 0.009711 pounds per gallon, dry (U.S.)
- = 0.008345 pounds per gallon, liquid (U.S.)
- = 0.001 grams per cubic centimeter (g/cm^3)
- = 0.00003613 pounds per cubic inch (lb/in^3)

kilogram per hectare (kg/ha) - weight per unit volume

- 1 kg/ha = 0.890 lbs/acre

kilogram per square centimeter (kg/cm^2) - a measure of pressure

- 1 kg/cm^2 = 2,048.17 pounds per sq foot (psf)
- = 735.514 millimeters (columns of mercury
Hg. 13.59593 sp g)
- = 32.8083 feet (columns of water, max. density
at 4C, 39F)
- = 28.9572 inches (columns of mercury
Hg. 13.59593 sp g)
- = 14.2234 pounds per sq inch (psi)
- = 10 meters (columns of water, max. density
at 4C, 39F)
- = 0.9807 bars
- = 0.96778 atmospheres, standard (760 mm)

kilohm (K) - 100 ohms

kiloliter (kl) - a unit of metric volume

- 1 kiloliter = 61,023.0 cu.inch
- = 1,000 liters (l)
- = 264.18 gallons (U.S. liquid)
- = 10 hectoliter (hl)
- = 1.308 cu. yards
- = 1 cubic meter

kilometer (km) - a measurement of length

- 1 km = 39,370 inches (in)
- = 3,280.83 feet (ft)
- = 1,093.61 yard (yd)
- = 1000 meters (m) (10^3m)
- = 198.838 rods (rd)
- = 0.62137 statute mile
- = 0.53959 U.S. nautical mile
- 1 mile = 1.6093 kilometer

kilometer per hour - a measure of velocities

- 1 = 54.68 feet/minute
- = 27.78 centimeter/second
- = 16.67 meter/minute
- = 0.91134 feet per second (fps)
- = 0.62137 miles per hour (mph)
- = 0.53959 knots (U.S.)
- = 0.27778 meters per second (mps)

kilometer per hour per sec - a measure of accelerations

- 1 = 0.91134 feet per sec/sec (fps²)
- = 0.62137 miles per hour/sec (mph-s)
- = 0.27778 meters per sec/sec (mps²)

kiloton (kt) - 1 kt = energy released by 1,000 tons of TNT

kilowatt (kw) - a measure of power

- 1 kw = 1×10^{10} erg/sec
- = 4.4254×10^4 ft-lbs/min.
- = 1,000 watts (10^7 ergs/sec)
- = 737.612 foot-pounds per second (ft-lb/sec)
- = 101.979 kilogram meters per second (kg-m/sec)
- = 56.884 Btu/min.
- = 1.35972 metric horsepower (75 kg-m/sec)
- = 1.34111 U.S. horsepower (550 ft-lb/sec)
- = 0.94796 Btu/sec (thermal units per sec)
- = 0.23888 kg-cal/sec (thermal units per sec)

kilowatt hour (kw-hr) - a measure of energy, work

- 1 kilowatt hour = 3,600,000 joules (10^7 ergs) j
- = 2,655,403 foot pounds (ft-lb)
- = 367,123 kilogram meters (kg-m)
- = 3,412.66 Btu (thermal units)
- = 859.975 kg-cal (thermal units)
- = 1.35972 metric horsepower-hours
(75 kg-m-hr)
- = 1.34111 U.S. horsepower-hours (hp-hr)

kipper - herring (fish) that are split, lightly salted, and smoked over-night

kip skin - calf skin weighing between 15 and 25 pounds

kiska - an imitation cooked sausage made from pork, oat groats, pork liver, pork spleen, salt, beef blood and spices

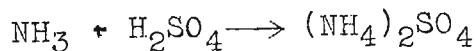
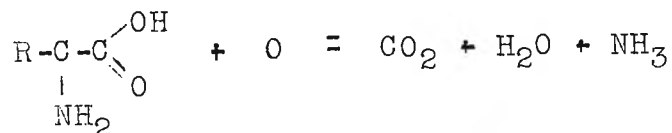
kiskatom - hickory nut

Kjeldahl (1849-1900) - a Danish chemist who developed a method of determination of nitrogen which bears his name

Kjeldahl determination - a determination of total nitrogen by oxidizing the carbon and hydrogen and converting the nitrogen into ammonium sulfate; sulfuric acid is the oxidizing reagent $H_2SO_4 = H_2 + SO_2 + O$

sodium or potassium sulfate raises the boiling point and thus aids in the oxidation;

copper sulfate acts as a catalyst



concentrated NaOH is then added and the ammonia is liberated and collected in a standard acid; from the amount of acid neutralized the ammonia nitrogen and crude protein (N x 6.25) can be calculated

knead - work dough

kneecap - patella

knock-kneed - knees too close together

knockwurst - a sausage formulation similar to bologna; no binders are added and garlic is used in the flavoring; it is stuffed in large casings and linked every 4 inches

knot (U.S.) - a measure of velocities

1 knot = 0.51479 meters per second (mps)
 (U.S.) = 1.68894 feet per second (fps)
 = 1.15155 miles per hour (mph)
 = 1.85325 kilometers per hour

knuckle (tip) - made up primarily of quadriceps muscles cranial to the femur; often made into dried beef; see "sirloin tip"

kobe - a variety of lespedeza

korean - a variety of lespedeza

kosher - Jewish term meaning ritually clean; Hebraic characters indicating kosher



kosher stick - cutting the throat just back of the jaw

Kr - see "krypton"

K-ration - 32 oz., 3-meal concentrated food package, 3726 calories

Krebs cycle - metabolism cycle in which pyruvic acid in the presence of O_2 broken down into carbon dioxide

Kreis Test - a test for oxidative rancidity in fats

krypton (Kr) - an element; at. no. 36; at. wt. 83.80;

oxidation state 0; electron configuration 2-8-18-8
orbit K L M N

kudzu - a perennial plant that is used to reclaim gullies and waste land; pH 6.0

L - see "D"

l - (-); laevorotatory

La - see "lanthanum"

labeling - on meat products, label should contain:

1. True name of product
2. Ingredients - followed by a list of ingredients in descending order of the amount used in formulating the product
3. Name and place of packer or for whom the product is prepared
4. Quantity of product
5. Inspection legend

labitae - mint family

lab table top dressing - 600 cc raw linseed oil
30 cc glacial acetic acid
2700 cc spirits of turpentine

allow 2 weeks for drying

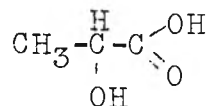
lachschen - two boneless cured pork loins are placed in a casing and smoked; may or may not be cooked

lactalbumin - an albumin protein found in milk

lactase - a carbohydrate digestion enzyme used to break down lactose into glucose and galactose

lactation - secreting of milk

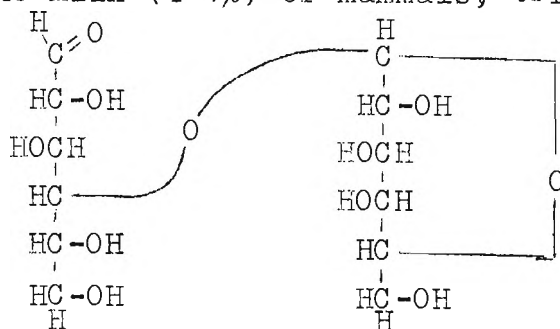
lactic acid - acid in sour milk, sauerkraut, silage and muscle after work and after death



lacto- - milk

lactometer - (galactometer); floating instrument used to measure specific gravity in milk

lactose (milk sugar) - a sugar made of 1 molecule of glucose and 1 molecule of galactose; $\text{C}_{12}\text{H}_{22}\text{O}_{11}$; it is found only in the milk (4-7%) of mammals; α form (16% as sweet as sucrose



ladino clover - a perennial legume used for pasture; approx.
nutrient used for 3 tons of grazing: 175 lbs. N

54 lbs. P_2O_5

140 lbs. K_2O

laevorotatory (levorotatory)(l)(-) - the ability of rotating
polarized light to the left

laevulose - see "fructose"

lag phase - a stage of bacterial growth in which the cell
increases in size but not much in numbers

lake - combination of mordant and dye

lamb - young of ovine species (sheep) of either sex and less
than 12 months old; does not have 1st pair of permanent
teeth and will produce a clean break at the "break joint"

lamb (meat) - flesh of young (less than 12 to 14 months old)
ovine animals of both sex

lamb chuck - a wholesale cut of lamb consisting of all in
front of the 4th rib

lambda (Λ , λ) - Greek letter with an English equivalent of l;
used as a symbol for wavelength of light

lambdas (λ) - a measure of volume or weight

1 lambda = 1 microliter

= 1×10^{-3} milliliters

= 1×10^{-6} liters

1 lambda = 1 microgram

= 1×10^{-3} milligram

= 1×10^{-6} grams

lambert - unit of brightness; 0.3183 candle/sq.cm.

lamb grades - Prime

Choice

Good

Medium - used only on spring lambs

Plain

Cull

see "hothouse lambs" for their grades

lamb hog - see "hoggett"

lamb racks - an elevated, trough-like skinning rack used in
the slaughter of lambs

Lamona - an American class of chicken that lays a light colored
egg; color - white

land plaster (rock gypsum) - a fertilizer material; 70-75%
 $CaSO_4$; used for calcium supply for peanuts; 0-0-0

Landrace - a bacon type hog originating in Denmark

Langshan - an Asiatic class of chickens that have feathered shanks and lays a brown shelled egg; Varieties -
 Black - white skin
 White - yellow skin

lanolin(e) - (wool fat, grease or wax); refined wool grease; mixture of cholesterol palmitate, cholesterol oleate, and cholesterol stearate; base for ointments and creams

lanthanum (La) - an element; at. no. 57; at. wt. 138.92; electron configuration 2-8-18-18-9-2; oxidation state +3
 orbit K L M N O P

lard - a natural fat extracted from pork fat;
 250 - 425°F. smoke point (varies with FFA content)
 .917 - .938 specific gravity
 1.441 - 1.461 refractive index (60°C.)
 36 - 45°C. mixed lard melting point
 86 - 104°F. back fat
 110 - 118°F. leaf fat
 195 - 203 saponification number
 46 - 70 iodine number
 80 - 85% yield from rinded fat
 75 - 78% yield from unrinded fat (hand press)
 240°F. max. rendering temperature
 40°F. storage temperature

see "larding"

larder beetle - an insect that feeds on stored meat and cheese

larding - method of securing pieces of bacon fat to meat to keep from drying during cooking

lard oil - liquid portion (primarily olein, stearin) obtained by pressing prime steam lard

0.905 - 0.916 specific gravity
 1.469 - 1.472 refractive index (15.5°C.)
 193 - 198 saponification number
 56 - 82 iodine number

lardoon (lardon) - narrow strips of bacon fat used to keep meat from drying during cooking

lard type - a classification of hogs that has been changed to meat type due to the trend toward leaner hogs

laredo - a variety of soybean

large numbers - $567 = 5.67 \times 10^3$

latent heat - heat absorbed or lost by a substance as it changes state without a change in temperature; e.g., water:
 solid \longleftrightarrow liquid -- 1 pound is 144 Btu

lateral - sides or flank

latin square - columns = rows = treatments

Column

Key

X_{column row treatment}

Row

A	B	C
C	A	B
B	C	A

Row	Column				Row ΣX
	1	2 ..	i ...	a	
1	X ₁₁₁	X ₂₁₂	X _{i1K}	X _{a1R}	X _{.1K}
2	X ₁₂₂	X _{22K}	X _{i2R}	X _{a21}	X _{.2K}
j	X _{1jK}	X _{2jR}	X _{ij1}	X _{aj2}	X _{.jK}
n	X _{1nR}	X _{2n1}	X _{in2}	X _{anK}	X _{.nK}
Col ΣX	X _{1.K}	X _{2.K}	X _{i.K}	X _{a.K}	X _{...}

Treat ΣX	Treatment Summary				X _{...}
	1	2	K	R	
	X _{..1}	X _{..2}	X _{..K}	X _{..R}	X _{...}

Correction = $(X_{...})^2 / an = C$ a = n = R

Total SS = $(X_{111})^2 + \dots + (X_{anK})^2 - C$

Row SS = $\frac{(X_{.1K})^2 + \dots + (X_{.nK})^2}{a} - C$

Column SS = $\frac{(X_{1.K})^2 + \dots + (X_{a.K})^2}{n} - C$

Treatment SS = $\frac{(X_{..1})^2 + \dots + (X_{..R})^2}{\# \text{ of obs. in Treat. Sum.}} - C$

Error = Total SS - Row SS - Column SS - Treatment SS

(cont'd on next page)

latin square (cont'd)

Sources of Variation	df	SS	MS
Total	an-1	Total SS	
Row	n-1	Row SS	Row SS/n-1
Column	a-1	Column SS	Column SS/a-1
Treatment	R-1	Treat. SS	Treat. SS/R-1
Error	(a-1)(a-2)	Error SS	Error SS/a ² -3a+2

F = MS of Row or Col or Treat/MS Error

df = a-1, a²-3a+2

latissimus dorsi - the broad muscle of the back; it is the lateral muscle in the rib end of a rib steak; runs from spinous processes of the lumbar to the humerus

laurel - see "bay leaves"

lauric acid - $\text{CH}_3(\text{CH}_2)_{10}-\text{C}\begin{matrix} \text{OH} \\ \text{=O} \end{matrix}$

a 12-carbon saturated acid found in laurel, coconut and palm oils

laver - edible seaweed

Law of Chemical Equilibrium - see "equilibrium constant"

Law of Mass Action - see "equilibrium constant"

leaching - washing out of soluble components

lead (Pb) - an element; at. no. 82; at. wt. 207.21;

oxidation states +2, +4; electron configuration 2-8-18-32-18-4
orbit K L M N O P

lead arsenate PbHAsO_4 - a poisonous inorganic insecticide
(arsenate of soda and acetate of lead)

leaf lard - rendered internal abdominal fat of the hog;
max. iodine number 50; m.p. 110-118°F.

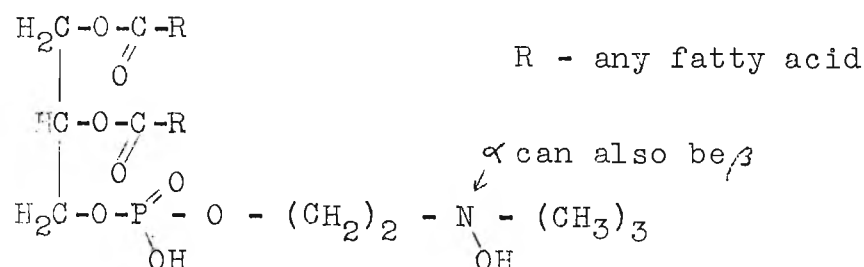
league - a linear measurement; 1 league = 15,840 feet
= 5280 yards
= 3 miles

lean cuts (hog carcass) - boston butt, picnic, loin and ham

lean pork trimmings - 20-25% fat

least significant difference - can be used if only 2 means are compared (a = 2)(a = # of treatments); if 3 or more means are compared, too many will be judged significant; difference in means = $t_{sx} \sqrt{2}$

leather - skin or hide of an animal that has been tanned
leathered furs - pelts that have been cut in strips and re-sewn with narrow strips of leather between them
leaven - see "leavening agent"
leavening agent - a substance used to make food lighter
Lebanon - an all-beef semi-dry sausage that is given a 6-14 days cold smoke; it has a tangy flavor due to microbial growth
Lebanon bologna - a sausage product made from beef
lechon - festive pig cooked over live charcoal
lecithin - a phospholipid with a base of choline, trimethyl hydroxyethyl ammonium hydroxide;



lecithins are found in brains, nerves, liver, egg yolk, soybeans, pancreas, heart, blood; lecithin is used as: emulsifying agent, anti-spattering agent, surface-active agent, and antioxidant (0.075%)

lecithinated soy flour - lecithin is added to defatted soy flour; 15% lecithin, 46-54% protein

lecithoprotein - protein is attached to lecithin or some other phospholipid

lee - a variety of soybean

leek - a vegetable whose bulb is used as food; it is in the onion family

leggy - legs too long

Leghorn - a Mediterranean class of chickens that is early maturing, a good egg producer, and lays a white shelled egg; Varieties: *Single-comb white

Rose	"	"	
Single-comb		light brown	
Rose	"	"	"
Single	"	dark brown	
Rose	"	"	"
Single comb		buff	*Bantam variety
"	"	black	also
"	"	silver	
Single comb		red	
"	"	black tailed red	
"	"	Columbian	

leg of lamb - can be several lengths but is usually cut in front of the hip bone; see "American leg of lamb" and "French leg of lamb"

legume - pulse

Leicester - a long wool breed of sheep originating in central England

lemon - a citrus fruit (Citrus limonis)

Storage
Conditions

Temp.	55°F.
Rel. humidity	90%
Freeze pt.	28°F.

lemon extract - 5% by volume of oil of lemon which is obtained by pressure from the peel or rind of a lemon usually 80% min. alcohol, .2-3% citral

Lent - a 40-day (excluding Sunday) fast period between Ash Wednesday and Easter

leptospirosis (lepto) - a highly contagious disease of cattle, hogs, dogs, rodents and man; there are blood tests and vaccinations available

lespedeza - an annual grass used for hay; seed 25 to 45 lbs./bu., 20 to 40 lbs./acre; pH 6.0; varieties: climax, kobe, korean, rowan; approx. nutrient used for 2 tons of hay - 77 lbs. N, 16 lbs. P₂O₅, 41 lbs. K₂O

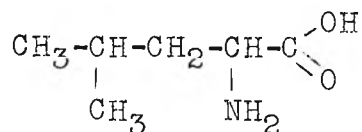
lespedeza, sericea - a perennial grass used for forage and erosion control; seed - 60 lbs./bu, 20-40 lbs./acre; pH 6.0; harvesting - when 12 inches tall, 2 to 3 times/yr.; varieties: common, Arlington

less than < - less than or equal to ≤

let-out fur - furs cut into thin strips and then re-arranged and resewn

lettuce - (Lactuca sativa); a vegetable whose leaf is used as food

leucine - a monoamino-monocarboxylic amino acid



leucocyte - see "white blood cells"

leunasalt peter - mixture of ammonium nitrate and ammonium sulfate used as a fertilizer

level - prices same as previous period

levulans (C₆H₁₀O₅)_x - polysaccharide made up of levulose units and found in many plants

levulose - see "fructose"

Li - see "lithium"

libbee - a variety of clingstone peaches

lice - parasites of several species that live on cattle, horses and swine; color - may be reddish, bluish or dark; Control: cattle giving milk - methoxychlor, rotenone, other - crude oil, lindane, malathion, methoxychlor, rotenone, toxaphene

lifeless market - a downward trend

ligament - attach bone to bone

ligamentum nuchae - back strap

light - velocity = 3×10^{10} cm/sec = 186,000 miles/sec

$$\text{frequency} = \frac{\text{velocity (cm)}}{\text{wavelength (cm)}}$$

light calf skin - calf skin weighing less than 9 lbs.

light cow hide - a cow hide weighing between 30 and 53 pounds

light steer hide - a steer hide weighing between 48 and 58 lbs.

lignin - occurs in plant cell walls

lignoceric $\text{CH}_3(\text{CH}_2)_{22}\text{COOH}$ - a saturated fatty acid; in peanut oil

liliaceae - lily family

limburger - a soft ripened cheese from Belgium

lime - citrus fruit (Citrus)

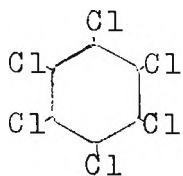
lime - calcium hydroxide, calcium oxide; also see "builders lime", "caustic lime", "hydrated lime", "lump lime", "precipitated lime", "slaking", and "water slaked lime"

limestone - see "agricultural limestone"; contains large quantities of calcium carbonate; dolomites or dolomitic limestone may also contain large quantities of magnesium carbonate; ground limestone 2.4 lbs./qt.

lime sulfur - an inorganic insecticide

Lincoln - a long-wool breed of sheep originating in North-eastern England

lindane - poisonous chlorinated insecticide



99% gamma isomer

line-breeding - mating of related animals but not as closely related as in in-breeding

link - a measure of length or distance; 1 link = 7.92 inches
25 links = 1 rod

linoleic acid $\text{CH}_3(\text{CH}_2)_4\text{CH}=\text{CHCH}_2\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ - an 18-carbon unsaturated (2 double bonds) fatty acid found in cottonseed and linseed oils and in animal fats

linolenic acid $\text{CH}_3(\text{CH}_2\text{CH}=\text{CH})_3(\text{CH}_2)_7\text{COOH}$ - an 18-carbon unsaturated (3 double bonds) fatty acid found in linseed oil

linseed oil - fatty oil obtained from flax seed

linseed oil meal - new process, 0.9 lbs./qt.

lipase - enzymes which act on lipids

lipo - fat

lipolytic - action of lipase enzyme

liter (l) (litre) - a measure of volume

1 liter = 16894 minims (Br.)
 = 16231 minims (U.S.)
 = 1,000.027 cu. centimeters (cm^3 or cc)
 = 1,000 milliliters (ml)
 = 270.5179 drams (U.S. fl.)
 = 100 centiliters (cl)
 = 61.0234 cubic inches (cu.in.)
 = 35.196 ounces (Br. fl.)
 = 33.814 ounces (U.S. fluid)
 = 10 deciliters (dl)
 = 2.11336 U.S. fluid pints
 = 1.0567 U.S. liquid quarts (l.qt.)
 = 1 cu. decimeter (dm^3)
 = 0.9081 U.S. dry quart (d.qt.)
 = 0.8990 quart (Br.)
 = 0.264178 U.S. liquid gallon (l.gal.)
 = 0.22702 U.S. dry gallon (d.gal.)
 = 0.21998 gallon (Br.)
 = 0.1 decaliter (dkl)
 = 0.03531 cubic feet (cu.ft.)
 = 0.02838 U.S. bushel (bu.)
 = 0.01 hectoliter (hl)
 = 8.387×10^{-3} barrels (U.S.)
 = 0.001308 cubic yards (cu.yd.)
 = 1×10^{-3} cu. meter

liter per hectare - volume per unit area

$$\begin{aligned} 1 \text{ liter/ha} &= 0.107 \text{ gal. (U.S.)/acre} \\ &= 0.089 \text{ gal. (Imp. or Br.)/acre} \end{aligned}$$

liter per minute - rate of flow

$$\begin{aligned} 1 \text{ liter per min.} &= 4.403 \times 10^{-3} \text{ gal./sec.} \\ &= 3.666 \times 10^{-3} \text{ gal.(Br.)/sec.} \\ &= 5.885 \times 10^{-4} \text{ cu.ft./sec.} \end{aligned}$$

lithium (Li) - an element; at. no. 3; at. wt. 6.940;

oxidation state +1; electron configuration 2-1
orbit K L

litmus - an indicator of neutrality; in an acid solution it is red, in a basic solution it is blue and in a neutral solution it is lavender; its pH range is 4 to 8

liver - the cells of the liver are polygonal in shape with a large central nucleus; the cells are arranged in columns and radiate from a central vein; good source of nutrients

liver sausage - sausage product made from pork, beef or veal, pork liver and bread; min. 30% liver; internal temperature of 145-165°F. (a good grade is often called braunschweiger)

loam - soil containing clay, sand and humus

lobster - a shell fish; 50% edible (av. 20% protein)

locust bean gum - a seed gum which has branched chains and is composed of D-mannose and D-galactose units of mol. wt. 310,000; it is used in the food industry

logarithm - if $a^x = y$ then $x = \log_a y$
 power logarithm base a

also, see "logarithm, negative"

change of base:

$$\text{Log}_e y = 2.303 \log_{10} y$$

$$\text{Log}_{10} y = 0.4343 \log_e y$$

Characteristic is left of decimal -- gives position of decimal,

1 is the characteristic in the following example 1.699

characteristic changes as follows:

$$\log 8 = 0.9031$$

$$\log 8000 = 3.9031$$

$$\log .0008 = \bar{4}.9031$$

Mantissa - is right of decimal;

antilogarithm - in table is .699 in above example

Characteristic and Mantissa

$$\log 50 = 1.699$$

logarithm (cont'd)

Multiplication:

(a) change #'s to their logs	$200 \times 4 = 800$
(b) add logs	2.3010
(c) find the antilog	0.6021
	<hr/>
	$2.9031 = 800$

Division:

(a) change #'s to their logs	$\frac{900}{45} = 20$
(b) subtract	
(c) find the antilog	2.9542
	1.6532
	<hr/>
	$1.3010 = 20$

Powers:

(a) find log of #	$3^4 = 81$
(b) multiply (a) by the power	$\log 3 = .4771$
(c) find antilog	4
	<hr/>
	$1.9084 = 81$

Roots:

(a) find log of #	$\sqrt[5]{243} = 243^{1/5} = 3$
(b) divide by root	
(c) find antilog	$\log 243 = 23856 \times 1/5$
	$= .4771$
	$= 3$

$$\log_x x = 1 \quad \text{and} \quad \log_y 1 = 0$$

logarithm, base 10 (log) - in chemistry and algebra (not mathematics), if base is not given it is assumed to be base 10

logarithm, base e (ln)(log_e) - $e = 2.71828$

in mathematics (not algebra) if base is not specified, it means e

logarithmic growth phase - a stage in bacterial growth following the log phase in which cells grow and divide at a constant rate

logarithm, negative - see "logarithm"; mantissae are always positive in tables.

In multiplication or division, (addition or subtraction of log) no problem

neg. pos.

$$\begin{array}{r} \text{Example: } .05 \\ \underline{.04} \\ .0020 \end{array} \quad \begin{array}{r} \overline{2.6990} \\ \overline{2.6021} \\ \hline \overline{3.3011} = .002 \end{array}$$

neg. pos.

$\overline{x.xxx}$ Form (neg. and pos.) used in multiplication or division (addition & subtraction of log) & looking up in table

$-x.xxx$ Form (all neg.) used in powers and roots (multiplication or division of log)

$$\begin{aligned} .005 &= \overline{3.699} = -3.000, + .699 \text{ form used in mult. \& div. \& table} \\ &= -2.301 = -2.000, - .301 \text{ form used in powers \& roots} \\ &\quad \text{but } \underline{\text{not}} \text{ in table} \end{aligned}$$

All neg. form is obtained as follows:

$$-3.000 + .699 = -2.301$$

To change this back to form that can be looked up in a table (positive mantissa)

Subtract one from characteristic and add one to mantissa

$$-2-1 = -3 \text{ characteristic}$$

$$-.301 + 1.000 = +.699 \text{ mantissa}$$

giving $\overline{3.699}$ can be found in table as .005

$$\begin{aligned} \text{Example: } \sqrt{.0016} &= .04 \\ \overline{3.2041} &= -3.000 + .2041 = -2.7959 \\ \frac{-2.7959}{2} &= -1.39795 = \overline{2.60205} \xrightarrow{\text{table}} .04 \end{aligned}$$

- loin - backbone and eye muscle area of a carcass;
 hog - trimmed loin 15% of carcass;
 choice steer - 17% of carcass
- loin end - the rear area of the loin up to the front of the hip bone; it contains the butt end sirloin, wedge bone sirloin, round bone sirloin, double bone sirloin and pin bone sirloin
- loin eye - see "longissimus dorsi"
- loin strip - the top muscle found in the short loin; often cut into strip steaks
- longissimus costarum - a long muscle of the back running from the spinous processes of the lumbar vertebra to the ribs; it is located between the spinous and transverse processes and from lateral to ventral of the longissimus dorsi as it proceeds from lumbar to rib section
- longissimus dorsi (loin eye) - a long muscle of the back running from the neck area to the sacrum and ilium; it is located between the spinous and transverse processes
- long saddle - a wholesale cut of veal or lamb consisting of all the area in back of the 4th rib; the quarters are not split
- longus colli - a muscle of the neck area that lies under the cervical and first 4 thoracic vertebrae; the trachea lies below its lower surface
- long-wool mutton type sheep - classification of sheep which includes the following breeds: Cotswold, Leicester, Lincoln, and Romney
- loss leader - an item sold at less than cost in order to draw in customers
- lou gim gong - a variety of late Florida oranges
- lovell - a variety of freestone peaches
- Lovibond color - official color scale of the American Oil Chemists' Society; a series of yellow and red glass discs are used to match the color
- lower market - see "market lower"
- low fat soy flour - 5-6% fat; 50% protein
- low grade flour - a grade of flour lower than second clear flour; used primarily as stock feed; see "clear flour"
- low-set - short legs
- LSD - see "least significant difference"
- LSM - low sodium milk
- L/S ratio (L over S ratio) - ratio of linoleic acid to saturated acid in a fat
- Lu - see "lutetium"

lumbar vertebrae - backbone area between the ribs and the slip joint

lumber - timber

<u>size</u>	<u>actual size</u>	<u>size</u>	<u>actual size</u>
1x2	25/32 x 1-5/8	2x6	1-5/8 x 5-5/8
1x4	25/32 x 3-5/8	2x10	1-5/8 x 9½
1x6	25/32 x 5-5/8	2x12	1-5/8 x 11½
1x10	25/32 x 9½	3x6	2-5/8 x 5-5/8
1x12	25/32 x 11½	4x4	3-5/8 x 3-5/8
2x4	1-5/8 x 3-5/8	4x6	3-5/8 x 5-5/8

lumen - light intensity; 1 lumen = 0.0796 spherical candle power

lumen - a measure of power; 1 lumen = 1.496 x 10⁴ erg/sec
 = 6.6204 x 10⁻² ft. lbs./min.
 = 0.001496 watt
 = 1.0034 x 10⁻³ ft. lbs./sec.
 = 8.5096 x 10⁻⁵ Btu/min.
 = 1.496 x 10⁻⁶ kilowatt

luminous meat - caused by phosphorescent bacteria; not a form of food poisoning

lump lime - a liming material composed of 85% CaO and each pound has the neutralizing equivalent of 1.5 to 1.75 pounds of CaCO₃ (or approximately this quantity of dolomitic limestone)

lumpy jaw - a disease caused by fungus (found on grasses) that affects the jaws of cattle and the udders of hogs; non-communicable

luster - glistening of fiber in light

lutetium (lutecium) (Lu) - a rare earth element; at. no. 71;
 at. wt. 174.99; oxidation state +3;
 electron configuration 2-8-18-32-9-2
 orbit K L M N O P

lux - unit of illumination

1 lux = 1 lumen/sq. meter

lycopene - a red pigment found in tomatoes; C₄₀H₅₆

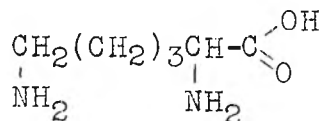
lye - potassium or sodium hydroxide or carbonates

lymph - fluid that is taken from the body tissues and returned to the blood stream

lyophile - solvent loving

lyophilization - freezing the product and then changing the ice directly to a vapor, and then removing the vapor

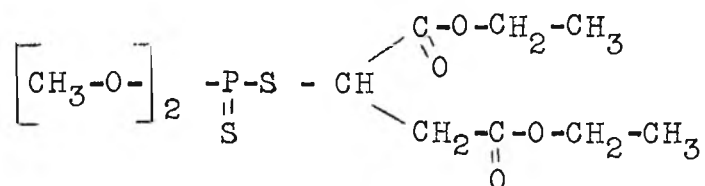
lysine - a basic amino acid



- M - see "molar"
- m - see "molal"; "meta"; and "meter"
- ma - see "milliampere"
- MAC - maximum allowable concentration
- macaroni - a mixture of wheat flour and water (sometimes also milk and eggs) that has been dried into $\frac{1}{4}$ -inch diameter tubes (.11 to .27 inch diameter); Other varieties:
- ditali lischi - small elbow pieces
 - " rigati - grooved small elbow pieces
 - tubetti - thinnest elbow shaped
 - rigatoni - large fluted elbow pieces
 - fovantini (or maccaroncelli) - $\frac{3}{32}$ -inch diameter tubes
 - zitoni - $\frac{1}{2}$ -inch diameter tubes
 - " rigati - $\frac{1}{2}$ -inch diameter fluted tubes
- macaroon - sweet cake made with almonds or coconut, sugar and egg white
- maccaroncelli - see "macaroni"
- mace (Myristica fragrans Houtt) - the whole or ground external fleshy covering (orange color) of the seed of nutmeg used for spices;
- not less than 20% or more than 30% nonvolatile ether extract
 - not more than 10% crude fiber
 - " " " 3% total ash
 - " " " .5% ash insoluble in HCl
- macédoine - mixture of vegetables or fruit
- macin - a protease enzyme found in the osage orange
- mackerel - see "pelagic fish"
- macon - mutton bacon
- macro- - prefix meaning larger
- magma - a mixture of sugar syrup and crystals; mixture in a thin paste
- magnesium (Mg) - an element; at. no. 12; at. wt. 24.32;
- oxidation state +2; electron configuration 2-8-2
 - orbit K L M
 - plant function - in chlorophyll
- magnesium sulfate - a neutral fertilizer material, $MgSO_4$, 33% MgO , 0-0-0; epsom salts
- maiden blush - a variety of apples that are in season in August and September that makes excellent sauce but only fair eating
- Maillard reaction (browning reaction) - brown color in food caused by reaction between proteins or amino acids and sugars
- maize (Indian corn) - grain Zea mays
- maize oil - see "corn oil"

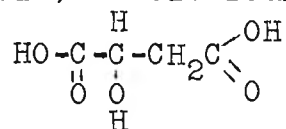
malaga - a variety of grape

malathion (malathon) - a poisonous agricultural insecticide



male (σ^7) - impregnating sex; see "sex"

malic acid (apple acid) - acid found in fruit



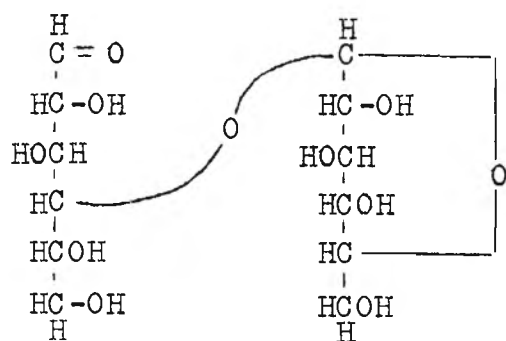
maltase - a carbohydrate digestion enzyme used to break down maltose into 2 glucose units

malted barley - this product is made by allowing the barley to sprout and in this process the starch is changed to maltose; used in production of beer, malted milk and malt syrup

Malthus, Thomas Robert (1766-1834) - an economist who wrote

"Essay on the Principle of Population" which stated that population increased geometrically and the food supply arithmetically

maltose (malt sugar)(maltobiose) - a sugar made of 2 molecules of glucose; $\text{C}_{12}\text{H}_{24}\text{O}_{11}$



It is dextrorotatory
30% as sweet as sucrose

malt vinegar - made by fermentation of malted cereals

Min.: 4% acetic acid
2% solids
.2% ash (min. 0.009% of phosphoric acid P_2O_5
in water soluble ash)

manganese (Mn) - an element; at. no. 25; at. wt. 54.94;

oxidation states +2, +3, +4, +7;

electron configuration 2-8-13-2; body function - functions
orbit K L M N in reproduction

manganese sulfate - a fertilizer material; $MnSO_4$; source of soluble manganese on land that has been over-limed

mange - a parasite (mite) that affects dogs, hogs, horses and mules (also man);

treatment - (1) mix 20 lbs. of benzene hexachloride (containing 6% gamma isomer) in 10 gal. water; spray on animals

(2) mix $1\frac{1}{2}$ lbs. lindane (25% wetttable powder) in 100 gal. water (do not use 30 days before slaughter or on sows suckeling pigs); spray on animals

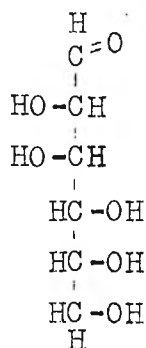
(3) dust young animals with 10% DDT

(4) isolate animals

mango - fruit of Mangifera indica tree

manioc - see "tapioca flour"; a woody South American tropical plant

mannose - a 6-carbon monosaccharide (hexoses) found in orange rind, seeds and sugar cane; $C_6H_{12}O_6$



Sweet taste - bitter aftertaste

mantissa - see "logarithm"

manufacturer's sugar - see "confectioners' sugar"

manure - excrement of animals

	Production Tons/year		Percent		
	solid	liquid	N	P_2O_5	K_2O
average	-	-	.7	.4	.5
cattle	9	4	.5	.3	.5
chickens	.07	-	.9	.5	.8
horses	7	1	.6	.3	.6
sheep	.5	.3	.9	.5	.8
swine	1	.6	.6	.5	.4

manure, green - crops that are plowed under for fertilizer

manyplies - see "omasum"

maple sap - contains sucrose, invert sugar, malic acid, mineral matter, and albuminoids; av. - 3% sucrose
av. - 3 lbs./tree/year

maple sugar - unrefined sugar made by concentrating the sap of the sugar maple tree until it crystallizes

maple syrup (sirup) - concentrated sugar maple (Acer saccharinum) tree sap; collected in early spring; not more than 35% water; standard wt. - 1 gallon (231 cu.inches) is 11 pounds; specific gravity - 1.325

maraschino cherries - unripe cherries that are cooked in syrup, colored, and flavored

marble - CaCO_3

marbling - fat intermingled in the muscle

marchpane - see "marzipan"

mare - female horse (generally of breeding age); gestation period 340 days (range 307-412); duration of heat period 5-7 days; normal recurrence of heat - approx. 21 days

mare mules - female mule

marengo, à la - fowl in a sauce made of tomato, white wine, butter, mushrooms and garlic

margarine - a food, plastic in form which contains at least 80% of one or more of the following fats:

- (a) rendered animal fat
- (b) vegetable fat or oil
- (c) stearin or oil derived from above fats or oils
- (d) milk fat

Oils and fats may be hydrogenated

Can also be added: (1) milk products
(2) flavorings
(3) butter
(4) salt
(5) coloring
(6) emulsifying agents
(7) vitamins
(8) preservatives

vitamin A - min. 15,000 U.S. pharmacopeia units/lb.
D - min. 2,000 " " " /lb.

lecithin	} max. 0.5% total wt.	sodium benzoate	} max. 0.1% total wt.
mono-glyceride		benzoic acid	
di-glyceride		potassium sorbate	

artificial flavoring - diacetyl or acetyl methyl carbinol; see "oleomargine"

- margarine color - carotene provitamin A or vegetable color
(approved by USDA)
- marigold - flowers and the green parts of sweet-scented marigold
sometimes used as seasoning
- marinate - stand in liquid
- marjoram - (Majorana hortensis) a fragrant and very popular
herb made from the dried green leaves and flowering tops
of a mint family plant found both whole and dried
- market collapse - see "market slump"
- market higher - bulk of sales are measurably higher
- market lower - bulk of sales measurably lower than previous period
- market slump - severe break in prices
- market steady - no change in prices from previous period
- market strong - an upward trend in which some sales are higher
but no advance in the bulk of sales
- market uneven - price changes may be either up or down
- market weak - downward trend in which some sales are for lower
prices but no decline in bulk of sales
- marl - a liming material composed of 60% CaCO_3 and clay and
each pound has the neutralizing equivalent of .5 to .9 pounds
of CaCO_3 (or approx. this quantity of dolomitic limestone)
- marmalade - small pieces of pulpy fruit (e.g., citrus fruit)
suspended in a clear smooth jelly-like mixture (1 lb. or
more sugar/lb. of fruit)
- marrow - soft substance found in the medulla (spaces) in
spongy bone; building area of red blood cells
- marshmallow - made from egg albumin or gelatin and sugar or
starch syrup
- marsh seedless - a variety of grapefruit
- Maryland No. 1 - a breed of hogs produced by crossing
Berkshire (38%) and Landrace (62%) breeds; it is black
and white in color and has erect ears
- marzipan - an almond and sugar paste confection
- masculinity - possession of secondary male sex characteristics,
such as heavy head, neck and shoulders
- mashing - ground grain and often with a small amount of malt
is heated with water and then cooled; malt is added and
brought to 140-150°F. at which time the starch is converted
to maltose
- massecuite - see "magma"

mastication - the grinding, reducing in size, mixing, and the addition of saliva that takes place in the mouth

mastitis - a disease of the udder caused by bacteria producing tissue changes

maurette - sauce of wine, butter, flour and spices

maverick - an unbranded stray

Maxwell disc - see "color wheel"

mayonnaise - is a semi-solid permanent emulsion of fat in H₂O

containing: edible oil - not less than 50%
eggs or egg yolk
vinegar or lemon juice

oil plus egg yolk = not less than 78%

mazola oil - corn oil

Mc - megacycles per second; millicurie

McCallum's macerating fluid - nitric acid - 1 part
glycerin - 2 parts
water - 2 parts

McIntosh red - a variety of apples that is in season in Sept. to March; makes excellent sauce and good eating and cooking apples

Md - see "mendelevium"

mean (μ) - center of a distribution

Estimated by sample mean $\bar{x} = \frac{\sum X}{n}$

Interval estimate of μ

$$\bar{x} - t_{.05} \frac{S_{\bar{x}}}{\bar{x}} \leq \mu \leq \bar{x} + t_{.05} S_{\bar{x}}$$

Probability is 95% that above area will include μ

$t_{.05}$ = table t value
at probability
desired (95%
used here)

$t(df) = n-1$

$S_{\bar{x}}$ = standard error

See "randomized group comparisons" for confidence limits on the difference of means

mean error - see "mean square"

mean lethal dose (Do) - irradiation dosage that will kill 63% of the population

mean square (s²) -

Variation of observations

it is the square of the sample standard deviation

$$s^2 = \frac{\sum x^2}{n-1} \quad \begin{array}{l} x = \text{deviations from mean} \\ n = \text{sample size} \end{array}$$

Pooled mean square for equal size randomized groups

$$s^2 = \frac{\text{pooled } \sum x^2}{2(n-1)} \quad n = \# \text{ in 1st group}$$

Pooled mean square for unequal size randomized groups

$$s^2 = \frac{\text{pooled } x^2}{(n_1-1)+(n_2-1)}$$

Test for homogeneity of variance

$$H_0: \sigma_1^2 = \sigma_2^2$$

$$F = \frac{\text{larger } s^2}{\text{smaller } s^2} \quad s^2 = df = n-1$$

means test - a test of the difference between 2 or more means

a = # of treatments
n = obs. per treatment

Turkey:

In "a" means there are a(a-1)/2 comparisons

$$D = Q \bar{sx} \quad \bar{sx} = \sqrt{\frac{\text{mean square of individuals or error}}{n = \text{observations in the mean}}}$$

Q = table value a = # of treatments
df = df for individuals or error (n-1) a

Treatment	Treatment mean \bar{x}	$\bar{x}_1 - \bar{x}_a$	$\bar{x}_1 - \bar{x}_{a-1}$...	$\bar{x}_1 - \bar{x}_2$
1	-	-	-	...	-
2	-	-	-		
3	-	-			
⋮	⋮				
a	-	-			

D compared with differences

C.L.

i = 1 through a

$$(\bar{x}_i - \bar{x}_1) + D \leq \mu_i - \mu_1 \leq (\bar{x}_i - \bar{x}_1) - D$$

(cont'd on next page)

means test (cont'd)Keuls test: (more powerful)

uses different Q depending on how far in sequence the means are apart

Q from table. $df = (n-1)a$ does not change
 $a = 2$: adjacent means
 3: means with one between them
 4: etc.
 .
 .
 a: extreme means

measuring cup - is $\frac{1}{4}$ quart; 236.6 cc

meat - MID definitions:

all edible part of muscle of cattle, sheep, swine, or goats which is skeletal;

Includes: tongue, diaphragm, heart, esophagus --
 also bone, skin, sinew, nerve, and blood
 vessels which normally occur in muscle tissue

Does not include: lips, snout, or ears

meat and bone meal - see "meat scrap"

meat and bone meal digester tankage - see "meat meal tankage"

meat and bone meal tankage - see "meat meal tankage"

meat and bone scrap - see "meat scrap"

meat balls - max. of 12% singly or collectively of:

farinaceous material,
 soya flour,
 soy-protein concentrate,
 non-fat dry milk,
 calcium reduced dried skim milk, and
 similar materials

meat grade - denotes the degree of conformation, finish and quality of a carcass of meat; beef grades are -

Prime
 Choice
 Good
 Standard
 Commercial
 Utility
 Cutter
 Canner

Meat Inspection Division of the Bureau of Animal Production and Marketing Administration - agency responsible for federal

meat inspection; duties include -

- (a) eliminate bad meat
- (b) enforce sanitary preparation
- (c) check for harmful ingredients
- (d) guard against false or misleading labels

meat meal - see "meat scrap"

meat meal tankage - live steam or dry rendered, finely ground, dried residue from animal tissues exclusive of hair, hoof, horn, manure and stomach contents; when it contains more than 4.4% phosphorus, the word "bone" must also be included in the name; approx. 1.6 lbs./qt.

meat scrap - dry-rendered finely ground residue from animal tissue, exclusive of hair, hoof, horn, hide trimmings, blood meal, manure and stomach contents; when it contains more than 4.4% phosphorus, the words "and bone" must be added to the name

meat stamp ink - a harmless vegetable dye containing water, alcohol, sugar and methyl violet

meat type - a classification of hogs that usually includes the following breeds: Berkshire, Chester White, Duroc, Hamprace, Hampshire, Hereford, Kentucky Red Berkshire, Minnesota No. 1, Minnesota No. 2, Ohio Improved Chester, Poland China, and Spotted Poland China

medial - the mid line, middle or middle plane

median - it is the value of the middle item of an array if $n = \text{odd}$; it is the average value of the two center items of an array if $n = \text{even}$

median plane - middle plane, where carcass is split, divides into right and left sides

medium - internal beef cooking temperature 160°F.

medium-wool mutton type sheep - classification of sheep which includes the following breeds: Cheviot, Columbia, Corriedale, Dorset, Hampshire, Oxford, Panama, Shropshire, Southdown, and Suffolk

medulla - inner portion; see "marrow"

medulla oblongata - lower portion of the brain that attaches it to the spinal cord

medullary cavities - hollow tubes in long bones

mega- - (one million) 1,000,000; prefix for quantities larger than the base unit; large

megaton (mt) - 1 mt = energy released by 1,000,000 tons of TNT

megohms (meg) - 1,000,000 ohms

melezitose - a trisaccharide made up of 2 molecules of glucose and one of fructose; found in the exudate of the fir and other trees ; $C_{18}H_{32}O_{16}$

melon - a fruit; 60% edible

melt - spleen; also change from solid to liquid by heat

melting point - temperature at which a solid becomes a liquid; impurities lower the melting point

mendelevium (Md or Mv) - a rare earth element; at. no. 101; mass number of most stable isotope 256; electron configuration 2-8-18-32-31-8-2
orbit K L M N O P Q

menthol - alcohol obtained from oil of a mint

mercaptan - see "alkanethiol"; RSH

mercury (Quick silver)(Hg) - an element; at. no. 80; at. wt. 200.61; oxidation states +1, +2; electron configuration 2-8-18-32-18-2
orbit K L M N O P

Merino - a fine-wool breed of sheep originating in Spain; three types of Merino:

"A" - skin is wrinkled over entire body

"B" - skin folds around neck, dock, flanks and thigh

"C" - (or Delaine Merinos) most popular type and has practically no wrinkling; has white nostrils, lips and hooves; rams have horns (polled strain does exist) and ewes are hornless; they will breed in almost any season

mertaste - a Merck flavor enhancer containing a mixture of disodium inosinate and disodium guanylate

mesophilic bacteria - bacteria that can grow at a medium temperature; minimum growth temp., 10 to 15°C
optimum " " , 35 to 40°C
maximum " " , 40 to 50°C

metabolic water - water formed from the oxidation of food

metabolism - biochem. reactions to which the materials of the body are subjected

metabolite - metabolism end product

metacarpal bones - fore foot bones located above the phalangeal bones

metatarsal bones - hind foot bones located between the phalangeal bones and tarsal bones

meter (m) - a measure of length

- 1 = 1000 millimeters (mm)
 - = 100 centimeters (cm)
 - = 39.3700 inches (in.)(U.S.)
 - = 10 decimeters (dm)
 - = 3.280843 feet (British)
 - = 3.280833 feet (ft)(U.S.)
 - = 1.093611 yard (yd)(U.S.)
 - = 0.198838 rods (rd)(U.S.)
 - = 0.001 kilometer (km)
 - = 0.0006214 miles (statute)
 - = 0.0005396 miles (U.S. nautical)
- 0.9144 m = 1 yard

meter - columns of water (max. density at 4C, 39F) - a measure of pressure

- 1 = 204.817 pounds per sq. foot (psf)
- = 73.5514 millimeters (columns of mercury, Hg. 13.59593 sp g)
- = 3.28083 feet (columns of water, max. density at 4C, 39F)
- = 2.89572 inches (columns of mercury, Hg. 13.59593 sp g)
- = 1.42234 pounds per sq. inch (psi)
- = 0.10 kilogram per sq centimeter (kg/cm²)
- = 0.09678 atmospheres, standard (760 mm)

meter per minute - a measure of velocity

- 1 = 3.281 feet/min.
- = 1.667 centimeters/sec
- = 0.06 kilometer/hr
- = 0.05468 feet/sec
- = 0.03728 mile/hr

meter per second (mps) - a measure of velocity

- 1 mps = 196.8 feet/min.
- = 3.6 kilometers per hr
- = 3.28083 feet per second (fps)
- = 2.23693 miles per hour (mph)
- = 1.94254 knots U.S.

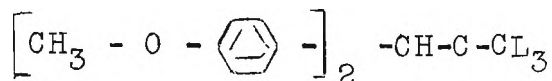
meter per sec/sec (mps²) - a measure of acceleration

- 1 = 3.28083 feet per sec/sec (fps²)
- = 2.23693 miles per hour/sec (mph-s)

methanol - see "methyl alcohol"

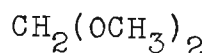
methionine - an amino acid; $\text{CH}_3\text{-S-CH}_2\text{-CH}_2\text{-CH-COOH}$
 NH_2

methoxychlor - also called, methoxy DDT; a poisonous chlorinated organic insecticide;



methoxyl - $\text{CH}_3\text{O-}$

methylal (formal) - used for extracting odor in perfumery



methyl alcohol CH_2OH (methanol)(wood alcohol) - commercial alcohol is about 90% methyl alcohol; it is poisonous; also called "wood alcohol" and "wood spirits"; b.p. 64.6°C

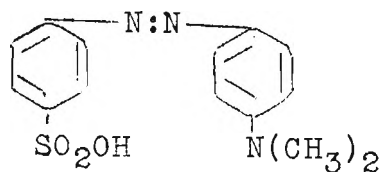
β -methyl- α - amino valeric acid - see "isoleucine"

methyl bromide (CH_3Br) - an alkyl halide which is often used as an insecticide and as a fumigant

methylcellulose - a cellulose derivative gum used as a thickener or emulsifier; greaseproof paper

methyl group - $-\text{CH}_3$

methyl orange - an indicator used when titrating weak bases; its pH range is 3 - 4.5; its color in acid is orange, pink in neutral, and yellow in alkaline solutions



Mix .1 g of the Na salt/100 ml water

methyl polysilicone - an anti-foaming agent used in food
 10 parts/million

methyl red - an indicator used when titrating strong acid, strong bases or weak bases; its pH range is 4-6; colors: acid - red, neutral-yellowish red, alkaline - yellow;
 mix .1 g in 60 ml of alcohol and 40 ml water

methyl violet - an indicator which is green when the pH is less than 2, blue between pH of 2 and 3, and violet for pH above 3; mix 0.1 g/100 ml water

metrecal - diet food containing all dietary essentials and 900 calories in $\frac{1}{2}$ pound

mett - a semi-dry pork sausage

mettwurst ("smearwurst") - a soft pork sausage that is pressed at low temperature and is tied in 2-3 inch lengths

meunière, à la - dipped in flour, heated in butter, and served with brown butter, parsley and lemon

Mexican - a summer variety of squash

mf - see "microfarad"

Mg - see "magnesium"

mg - see "milligram"

micro- - (one-millionth) 0.000 001; prefix for quantities smaller than the base unit; prefix meaning very small

microampere (μ a) - a millionth of an ampere

microfarad (μ f)(mf) - 1 millionth of a farad

microgram (μ g)(γ)(mcg) - a measure of mass; one millionth of a gram sometimes called a gamma (γ);

$$\begin{aligned} 1 \mu\text{g} &= 0.001 \text{ mg} \\ &= 0.000,001 \text{ g} = 1/1,000,000 \text{ g} \\ &= 3.53 \times 10^{-8} \text{ oz. (avoir)} \end{aligned}$$

microgramme - see "microgram"

microliter (μ l)(λ) - a measure of volume;

$$\begin{aligned} 1 \text{ microliter} &= 1 \text{ cubic millimeter} \\ &= 0.27 \times 10^{-3} \text{ dram} \\ &= 6.1 \times 10^{-5} \text{ cubic inch} \\ &= 1 \times 10^{-6} \text{ liter} \end{aligned}$$

micromicron ($\mu\mu$) - a measurement of length

$$\begin{aligned} 1 \mu\mu &= .001 \text{ millimicron} \\ &= .000,000,001 \text{ mm} \\ &= 1 \times 10^{-12} \text{ meter} \end{aligned}$$

micron (μ or $m\mu$) - ($m\mu$ also often means millimicron) - a measurement of length; 1/1000 of a millimeter

1 $m\mu$ = 1×10^4 angstrom units
 = 1,000 milli-micron, micro-millimeter
 = .039370 mil
 = .001 millimeters
 = 1×10^{-4} centimeters
 = 3.937×10^{-5} inches
 = 10^{-6} meters

microscope - optical instrument used to view small objects

microtome - instrument for cutting thin sections

microvolts - 1×10^{-6} volts

middles - natural casings used in the meat trade; it comes from the middle part of the large intestine of pork; also, see "narrow-end", "wide-end", and "fat-end middle"

midriff - see "diaphragm"

mile (British) - a measure of length

1 mile = 1.60934 kilometer

mile (statute)(mi)(U.S. statute) - a measurement of length

1 mile = 1.609×10^5 centimeters
 = 63,360 inches (in.)
 = 5,280 feet (ft)
 = 1,760 yard (yd)
 = 1,609.35 meter (m)
 = 320 rods (rd)
 = 80 chain (Gunther's)
 = 8 furlongs
 = 1.60935 kilometer (km)
 = 0.86836 U.S. nautical miles

mile (U.S. nautical) - a measurement of length

1 mile = 72,962.5 inches (in.)
 = 6,080.20 feet (ft)
 = 2,026.73 yard (yd)
 = 1,853.25 meters (m)
 = 368.497 rods (rd)
 = 1.85325 kilometers (km)
 = 1.15155 statute miles

mile per hour (mph) - a measure of velocity

1 mph = 88 feet/min.
 = 44.7041 centimeters per second
 = 26.82 meters/min.
 = 1.60935 kilometers per hour
 = 1.46667 feet per second (fps)
 = 0.86839 knots U.S.
 = 0.44704 meters per second (mps)
 = 0.016667 mile/min.

mile per hour/sec (mph-s) - a measure of acceleration

1 = 1.46667 feet per sec/sec (fps²)
 = 0.44704 meters per sec/sec (mps²)

milk - secretion of mammary gland

max. 88% watery fluid
 min. 12% solids
 min. 3% fat
 max. holding temp. 45°F.
 specific gravity 1.030 - 1.034
 freezing pt. - 0.530°C (a rise indicates adulteration)
 1 gal. = 8.6 lbs.
 46½ qts. = 100 lbs.
 1 gal. cream = 8.4 lbs.
 pH - 6.62

Composition:

	<u>Average</u>	<u>Range</u>
water	87%	
carbohydrates	5%	4.3 - 5.3 %
fat	4%	3.2 - 6.0%
protein	3.3%	2.5 - 4.0%
minerals	0.7%	0.7 - 0.8%
solids not fat -		8.0 - 9.5%
total solids -		11.8 - 15.0%

see "lactic acid"

milk chocolate (candy bar chocolate) - a mixture of chocolate and condensed milk or dry milk powder; contains not less than 12% milk solids

milk fat - fat obtained from milk; cow milk ranges from 3.3 to 5.4%

<u>Fatty acid</u>		
<u>Saturated carbon atoms</u>	<u>% of total</u>	
4	3	Iodine # 25-45
6	2	Sapon. value 210-240
8	1	Melting point 28-36
10	3	Specific gravity 0.930 - 0.940 at 15.5°C
12	3	Refractive index 1.460 at 25°C
14	9	Titer 33-38°C
16	24	
18	13	
20	trace	
Odd #	2	
branch chain	1	
Mono unsat.		
10	trace	
12	trace	
14	1	
16	2	
18	30	
Poly unsat.		
18 - 2	2	
others	2	

milk fat test - varies with the following:

1. Breed: Jersey and Guernsey are usually higher
2. Stage of lactation: increases with lactation
3. Season: higher in fall and winter
4. When drawn: first milk test lower than stripping
5. Interval between milking: longer interval, lower the test
6. Number of lactations - after several lactations, milk fat decreases
7. Feed - little effect

milk fever - a condition in cattle which causes loss of consciousness, head resting on right flank and it usually occurs after calving; treatment involves a calcium preparation

milk, filled - see "filled milk"

Milking Shorthorn - a dual-purpose type of cattle

milk serum - see "whey"

milk shake - a mixture of milk, ice cream, flavoring and sometimes eggs

milk stone - deposits of calcium and magnesium phosphates, proteins and other ingredients precipitated when milk is heated above 140°F.

milk sugar - lactose

millet - an annual plant often used for grazing and hay;

varieties: foxtail, gahi, japanese, pearl, starr;

approx. nutrient used for 2 tons of hay: 53 lbs. N
14 lbs. P₂O₅
86 lbs. K₂O

milli- - (one-thousandth) 0.001; prefix for quantities smaller than the base unit

milliampere (ma) - 10⁻³ amp. or a thousandth of an ampere

millier (metric ton) (tonne) = 10³ kilograms

milligram (mg) - a measure of mass; 1/1000 of a gram

1 milligram = 0.015432356 grain
= 0.005 carat (metric)
= 0.001 gram (10⁻³g)
= 0.000,771,618 scruples (apoth)
= 0.000,643,014,8 pennyweight (dwt)
= 0.000,564,383,3 drams (avoir)
= 0.000,257,205,9 drams (Troy)(ap)
= 3.527396 x 10⁻⁵ ounces (avoir)
= 3.215074 x 10⁻⁵ ounces (Troy)(ap)
= 2.67923 x 10⁻⁶ pounds (Troy)(ap)
= 2.20462 x 10⁻⁶ pounds (avoir)
= 1 x 10⁻⁶ kilograms

milliliter (ml) - a liquid measure

1 ml = 16.894 minims (Br.)
 = 16.231 minims (U.S.)
 = 1.000027 cu. centimeters (cc)
 = 0.2705 dram (U.S. apothecaries)(U.S. fl.)
 = 0.061024 cu. in.
 = 0.03520 ounces (Br.fl.)
 = 0.03382 ounces (U.S. liquid)
 = 0.0084538 gill (U.S.)
 = 0.00211 pints (U.S. liquid)
 = 0.001 liter
 = 2.6418×10^{-4} gallon (U.S.)
 = 2.199×10^{-4} gallon (Br.)
 = 3.5316×10^{-5} cu. ft.
 = 8.387×10^{-6} barrels (U.S.)

29.6 ml = 1 fluid ounce

millimeter (mm) - a measure of length

1 mm = 1,000 micron
 = 39.37 mils
 = 0.1 centimeter
 = 0.0393701 inch (British)
 = 0.0393700 inch (U.S.)(3.9×10^{-2} in.)
 = 0.001 meter

millimeter - columns of mercury (Hg. 13.59593 sp g) - a measure of pressure

1 = 2.78468 pounds per sq. foot (psf)
 = 0.04461 feet (columns of water, max. density at 4C,39F)
 = 0.03937 inches (columns of mercury, Hg. 13.59593 sp g)
 = 0.01934 pounds per sq. inch (psi)
 = 0.01360 meters (columns of water, max. density at 4C,39F)
 = 0.001360 kilograms per sq. centimeter (kg/cm^2)
 = 0.001316 atmospheres, standard (760 mm)

millimicrogram (m γ)(μg) - a unit of weight

1 m γ = 0.000001 mg
 = 10^{-3} microgram
 = 3.53×10^{-11} ounces (avdp)

millimicron (micro-millimeter)($m\mu$) - a measure of length

$$\begin{aligned}
 1\ m\mu &= 10A^\circ \\
 &= 0.001\ \text{micron} \\
 &= 0.000001\ \text{mm} \\
 &= 1 \times 10^{-7}\ \text{cm} \\
 &= 3.9 \times 10^{-8}\ \text{inches} \\
 &= 1 \times 10^{-9}\ \text{meter}
 \end{aligned}$$

milling - separating of the endosperm from the germ and bran

Millon test - a test for tyrosine or proteins containing tyrosine;

a red color is produced when protein is heated with mercury dissolved in nitric acid (Millon reagent);

protein (no tyrosine) - negative test;

gelatin -- faint;

carbolic and salicylic acid (phenol group) - positive test

milt - roe of male fish; animal spleen

mineral mixtures (livestock) - free choice

Mixture #1:

100 lbs - salt

100 lbs - ground limestone or oyster shell flour

100 lbs - phosphatic limestone (not over .5% flourine)

Mixture #2:

80 lbs - steamed bone meal

20 lbs - salt

minestra - see "minestrone"

minestrone - a meat and vegetable soup

minim (Br.) - a measure of volume; 1 minim = 0.059 ml

minim (U.S.) - a measure of volume; 1 minim = 0.062 ml

Minnesota No. 1 - an inbred breed of hogs developed from a cross of Danish Landrace (48%) and English Tamworth (52%); it is red with occasional black spots

Minnesota No. 2 - an inbred breed of hogs produced by crossing a Yorkshire (40%) boar with Poland China (60%) sows; the hog is black and white with semi-erect ears

Minorca - a mediterranean class of chickens, with white skin and lays a white shelled egg; Varieties: *Single-comb black
 rose-comb black
 single-comb white
 rose-comb white
 single-comb buff
 *Bantam variety also

- mint (Mentha piperita L. and Mentha spicata L.) - a perennial herb; many types -- peppermint, spearmint (Our Lady's mint and Erba Santa Maria), and applemint
- mite - see "cheese mite"
- mitral valve - heart valve which allows one-way flow of blood from the left auricle to the left ventricle
- M.I.U. - moisture, insolubles and unsaponifiable
- mix - to combine
- mixed glyceride - when there is more than 1 type of acid present in the triglyceride
- ml - see "milliliter"
- mm - see "millimeter"
- Mn - see "manganese"
- Mo - see "molybdenum"
- mocha - a coffee-chocolate flavoring; soft leather
- mock duck - a specialty cut of lamb made from the outside of the shoulder
- mode - the class which has the greatest frequency
- modified American - hotel plus breakfast and either lunch or dinner
- modified wine - made by alcoholic fermentation of grapes and sugar or sirup (min. 65% sucrose); max. 11% alcohol (by volume)
- mohair - coarse wool sheared from Angora goats
- moist heat cooking - method of cooking the less tender cuts of meat by surrounding them with hot liquid or vapor; this includes braising and cooking in water
- moisture analysis - is determined by drying at a specific elevated temperature, with or without vacuum, for a specific time and reporting the loss in weight as moisture; also, distillation as an azeotropic mixture is sometimes used to determine moisture
- molal (m) - the concentration of a solution that contains x (concentration) mole (gram molecular weight) of solute in 1,000 g. of solvent; sometimes called a formal solution
- molar (M) - a solution of a concentration that one liter of the solution contains x (concentration) gram molecular weights or moles of the solute
- molasses - liquid remaining after the sugar has been removed from the concentrated sugar solution; contains not more than 25% water, and not more than 5% ash; wt. 3 lbs/qt.

molasses feeds - .8 lbs/qt.; 75 lbs. of molasses is equivalent to 1 bu. of corn in feeding value; max. amount of molasses to feed - 20% of ration

mole (mol) - gram-molecular weight; molecular weight

molecular formula - a formula which tells the actual number of atoms in each molecule but not arrangement

molecular weight - relative weight of a molecule of the substance compared to the weight of a molecule of oxygen gas (16.000)

molecule - smallest portion of a substance that can retain the properties of the substance

mollusk - a class of shell fish that has a soft unsegmented body and a calcareous shell; e.g., oysters, clams, scallops, and mussels

molybdenum (Mo) - an element; at. no. 42; at. wt. 95.95; oxidation state +6; electron configuration 2-8-18-13-1
orbit K L M N O

mongrel - an animal of nondescript breeding; (usually derogatory term)

Monkey - foundation sire of the Santa Gertrudis breed

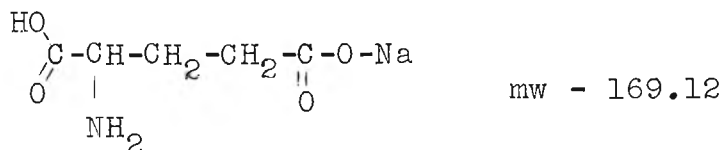
mono- - prefix meaning one

mono ammonium phosphate - a fertilizer material; 20-66-0

monogastric - single stomach animals; e.g., swine, chickens

monoglyceride - glycerol esterified with one molecule of an acid; has good emulsifying properties

monosodium glutamate (MSG) - a derivative of the hydrolysis of vegetable protein that is used to enhance the natural flavors of food;



.2 to .5% concentration on salted food

Montana No. 1 - a breed of hogs developed by crossing solid black Hampshire (45%) boars with Danish Landrace (55%) sows; it is solid black in color

moon blindness - a condition in which blue scum covers the pupil

mordant - coagulant used to bind dye to cloth fiber; e.g., aluminum hydroxide, stannic acid

mornay - a sauce made with butter, egg yolks, milk, cream, and parmesan cheese

morphine $C_{17}H_{19}NO_3$ - derived from a poppy seed; used to relieve pain

mortadella - a semi-dry sausage made mostly of pork (75%) and is mixed with beef (25%) or veal and after curing is mixed with pork fat cubes; it is then smoked gradually until the internal temperature reaches 140°F.

mortar and pestle - a cup and rod device usually made of silica for grinding chemical samples

mountain laurel - a poisonous plant

mousse - a frozen, sweetened, flavored whipped cream

mouton - fur made from sheep skin

MSG - see "monosodium glutamate"

Mu (μ) - Greek letter with an English equivalent of m

muir - a variety of freestone peaches

mule - a hybrid from the mating of a Jack and a mare

muley (mulley) - naturally hornless

mullet - see "pelagic fish"

multifidus dorsi - back muscle that connects the transverse process to the spinous process of the vertebra in front of it; in cross section, it is medial and ventral to the longissimus dorsi and lies close to the spinous processes

multiple fruit - fruit formed from several flowers which combined during ripening; e.g., pineapple

muriate - chloride

muriate of potash - a neutral fertilizer material; KCl; 0-0-50; or 0-0-60

muriatic acid - hydrochloric acid

murrain wool - taken from decomposed sheep

muscat - a variety of grape

muscatel (American) wine - a golden dessert wine made from the muscat grapes

musk ox - Arctic North American ruminant that exudes a musky odor; odor does not affect meat

mussel - a bivalve mollusk; 20% of weight is meat

mustard - ground seed of mustard plant used for spices;

yellow mustard - Brassica juncea L.; white mustard - Brassica hirta
Max. 1.5% starch; Max. 6% total ash; may be obtained as: prepared form (hot dog), powdered (ground mustard, mustard flour), whole; a vegetable whose leaf is used as food

mustard flour - ground seed of the mustard plant with some of the oil and most of the hulls removed

mustard oil - 0.915 - 0.919 specific gravity
 1.474 - 1.477 refractive index (15.5°C)
 171 - 176 saponification number
 94 - 113 iodine number

mutton - flesh from an ovine animal (sheep) that is older than the lamb age (12 to 14 months)

mutton grade - same as beef grades, except not eligible for prime

muzzle - lower part of face and nose

Mv - see "mendeleevium"

mycostat - mold inhibitor

mylar - see "polyester"

myo- - muscle

myoblasts - embryonic cells that will be transformed into muscle fibers

myofibrils - a sub-unit of a muscle fiber

myofilaments - contractile element of a muscle; sub-unit of myofibrils

myoglobin - respiratory pigment responsible for color of muscle

myology - the study of muscles

myosin - see "actomyosin"

myotomes - fish muscle segments that fit in-between the vertebrae

myristic acid $\text{CH}_3(\text{CH}_2)_{12}\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$ - a 14-carbon saturated acid

found in butter and wool fat

N - see "nitrogen", "normal"

Na - see "sodium"

nacre - see "cultured pearl"; mother-of-pearl

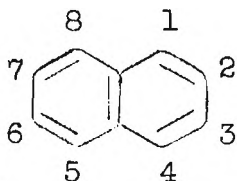
Nancy Hall - a moist sweet variety of sweet potato

nanny goat - female goat

nano- - (one-billionth) 0.000 000 001; prefix for quantity
smaller than the base unit; small

naphtha (petroleum ether) - low boiling fraction of petroleum;
used in dry cleaning, fuels

naphthalene (naphthalin)(naphthaline) - cyclic hydrocarbon
in coal tar; used as an antiseptic and insecticide



Napierian logarithms - see "logarithm, base e"

Narragansett - a variety of alfalfa

narrow-end middle - natural casings used in the meat trade;
it comes from the first part of the large intestine of beef

narrow hog casing - 29 to 32 mm

narrow medium hog casing - 32 to 35 mm

National Formulary - N.F. grade (N.F.); a designation of a
grade of chemical purity that meets specifications of the
National Formulary; chemical grades according to de-
creasing purity:

1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

National Livestock and Meat Board - organization to promote
livestock and meat; 36 South Wabash, Chicago, Ill. 60603

native - unbranded hide; normal

native protein - not denatured

natto - fermented soy bean

natural cheese - unblended cheese whose flavor depends on:
type of milk, bacteria, seasoning, and ripening technique

natural gas - gas used as a fuel that is found in the earth;

a typical analysis: 83.4% by volume of methane (CH_4)

15.8% by volume of ethane (C_2H_6)

0.8% by volume of nitrogen (N_2)

natural logarithm - see "logarithm, base e"

natural pearl - a pearl produced without man adding a foreign
substance to the oyster

nautical mile - a measure of distance; 1 nautical mile =
6082.66 feet

naval stores - see "spirits of turpentine" and "rosin"

navel orange - a variety of seedless California orange that
has a navel end and is round in shape; in season November
to May

Nb - see "niobium"

Nd - see "neodymium"

NDGA - see "nordihydroguaiaretic acid"

Ne - see "neon"

near infra-red - shortest infra-red wavelength

near side - left side of a horse; horse is harnessed, mounted
and led from this side

near ultra-violet - longest ultra-violet wavelength

neat - cattle; undiluted

neatsfoot oil - oil obtained by pressing shin bones and feet
of cattle; iodine number 45-75; used for waterproofing
and softening leather

neck bone - see "cervical vertebrae"

necro- - dead

necropsy - postmortem examination

nectarine - a variety of peach with smooth skin

Nellore - a strain of Brahman cattle

neodymium (Nd) - a rare earth element; at. no. 60; at. wt.

144.27; oxidation state +3;

electron configuration 2-8-18-22-8-2

orbit K L M N O P

neon (Ne) - an inert gaseous element; at. no. 10; at. wt. 20.183;
oxidation state 0; electron configuration 2-8
orbit K L

neoplasm - new and abnormal growth

nephelometric analysis - an optical analysis in which concentration is determined by comparing intensity of light reflected from suspended particles with that of a known concentration of the same particles

neptunium (Np) - a rare earth element; at. no. 93; mass number of most stable isotope 237; oxidation states +3, +4, +5, +6; electron configuration 2-8-18-32-22-9-2
orbit K L M N O P Q

neufchatel - a soft white ripened cheese from France

neutral - pH 7; neither plus nor minus

neutral lard - lard rendered slowly (at 126°F) from back and leaf fat

neutral spirit - see "silent spirit"

neutron - a neutral particle in all atomic nuclei except (common) hydrogen; charge - 0

mass - 1.675×10^{-24} grams

atomic wt. - 1.0086

diameter - 2.8×10^{-13} cm

New England (Berliner) - a coarse cut sausage of pork and a little beef

New Hampshire - an American class of chickens that lays a brown shelled egg; plumage color: chestnut red
male - head - reddish, neck and back - golden, tail feathers - black (some edged in red)
female - neck - chestnut red, tail feathers - black and red

new potatoes - potatoes dug before they reach full maturity

new process cornmeal - see "cornmeal", (new process)

New York lettuce - a variety of head lettuce

New York style - see "Eastern style"

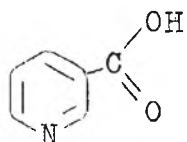
New York style shoulder - a pork shoulder that is trimmed, skinned and had the neck bone and back removed; about 16% of pork carcass (head and leaf fat on)

N.F. - see "National Formulary"

NFE - see "nitrogen-free extract"

Ni - see "nickel"

niacin (nicotinic acid)(p-p factor) $C_6H_5NO_2$ - a water soluble (B-group) vitamin; when deficient, produces a disease called pellagra (man) or black tongue (dog); it functions in the oxidation-reduction system in cells; Source - liver, kidney, meat, yeast, cereals, legumes, wheat germ, enriched foods, green and leaf vegetables; deficiency symptom - loss of appetite and wt.; skin eruptions



nickel (Ni) - an element; at. no. 28; at. wt. 58.71;

oxidation states +2, +3; electron configuration 2-8-16-2
orbit K L M N

nicotine (nicotin) $C_{10}H_{14}N_2$ - derived from tobacco; use -
insecticide, fumigant

nicotinic acid - see "niacin"

nigger toe - see "Brazil nut"

night-blindness - difficulty in seeing in dim light

nightshade (deadly) - a poisonous plant

ninhydrin test - a test for amino acids with a free amino and a free carboxyl group, and this includes all amino acids except proline and hydroxyproline; a deep blue color is given when ninhydrin is added to these amino acids

niobium (Nb)(columbium) - an element; at. no. 41; at. wt. 92.91;
oxidation states +3, +5; electron configuration 2-8-18-12-1
orbit K L M N O

niter - insoluble residue of maple sap; also potassium nitrate

nitrate - salt of nitric acid; used in meat curing; should not exceed 500 ppm (.05%) in finished product; sodium or potassium nitrate; 7 lbs./100 gal. pickle (10% pump)

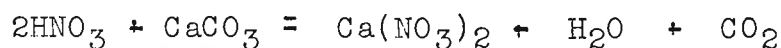
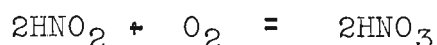
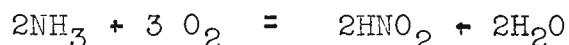
nitrate ion - NO_3^-

nitrate of soda - a fertilizer material; $NaNO_3$; 16-0-0;
basic in nature and each pound is equivalent to .29 pounds of dolomitic limestone

nitric acid (aqua fortis) (HNO_3) - mol. wt. 63.02; b.p. 86°C

Commercial strength:	Mole/l.	g/l.	% by wt.	Specific gravity	Normality
	15.99	1008	71	1.42	-
	-	-	69	1.409	15.4
	14.9	938	67	1.40	-
	13.3	837	61	1.37	-

nitrification - bacterial conversion of plant and animal waste into soil nitrates



nitriles - $\text{RC}\equiv\text{N}$

nitrite - salt of nitrous acid; used in meat curing; both sodium and potassium nitrite can be used; Max. amount - $\frac{1}{4}$ oz. sodium nitrite or potassium nitrite/100 lbs.meat, finished product cannot contain over 200 ppm, 2 lbs. in 100 gallons of pickle (10% pump), 1 oz./100 lbs. of meat in dry cure, 200 ppm (.02%) in finished product

nitrite analysis - is determined by extracting the sample with water and developing a color by using Griess reagent and then measuring this color spectrophotometrically; results can thus be obtained by comparing the value received with a known standard curve

nitrite ion - NO_2^-

nitroalkane R-NO_2 - a hydro carbon in which one hydrogen atom has been replaced by a nitro group; I.U.C. - nitro is added in front of the hydrocarbon name; a number may precede nitro to indicate its position

nitrogen (N) - a gaseous element; at. no. 7; at. wt. 14.008; oxidation states +1, +2, +3, +4, +5, -1, -2, -3; electron configuration 2-5; orbit K L; liquid nitrogen, b.p. -195.8°C .

nitrogen determination - see "Kjeldahl determination"

nitrogen-free extract (NFE) - more soluble carbohydrate and cellulose;

$\% \text{ NFE} = 100 - (\% \text{ H}_2\text{O} + \% \text{ ash} + \% \text{ protein} + \% \text{ fiber} + \% \text{ fat})$
nitrogenous ratio (N.R.) (albuminoid ratio) -

N.R. = ratio of $\% \text{ protein}$ to $\% \text{ carb.} + \% \text{ fat (2.5)} +$
 $\% \text{ indigestible matter}$

Ratio by which the body building power of diet is judged; should be between 1:4 and 1:8

nitroparaffin - see "nitroalkane"

No - see "nobelium"

nobelium (No) - a rare earth element; at. no. 102; mass number of most stable isotope 254;

electron configuration 2-8-18-32-32-8-2
 orbit K L M N O P Q

noggin (quartern) - a measure of liquor; 1 noggin = $\frac{1}{4}$ pint
 = 1 gill

noil - short wool fibers removed during the process of combing

non-electrolytes - substances when put into solution are not good conductors of electricity

non-fat dried milk - see "binder"

non-fat dry milk grade - U.S. Extra Grade; U.S. Standard Grade

non-polar - substance with a low dielectric constant; e.g., hexane (C_6H_{14})

nonprotein nitrogen (NPN) - nitrogen obtained from things other than protein

non-reducing sugars - sugars which are very slowly or not at all oxidized by weak oxidizing agents (silver, mercuric or cupric salts); contain no free aldehyde or ketone groups; e.g., sucrose

noodles - a mixture of wheat flour and water (sometimes also milk and eggs) that has been dried into flat strips;

Other varieties: reginette - wavy strips
 tagliarine - $\frac{1}{3}$ noodle width
 tagliati - irregular shapes

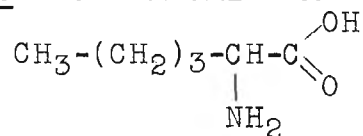
Also, slices of a sugar beet root

nor - chemical prefix and means minus one methyl group; not

nordihydroguaiaretic acid (NDGA) $C_{18}H_{22}O_4$ - an antioxidant used to retard rancidity in fat; .01% in fat (total antioxidant - .02% in combination)

norit - activated carbon

norleucine - a monoamino-monocarboxylic amino acid;



normal (N) - a solution of a concentration that one liter of the solution contains X (concentration) gram equivalent weights of the solute

normal distribution - equation for the distribution

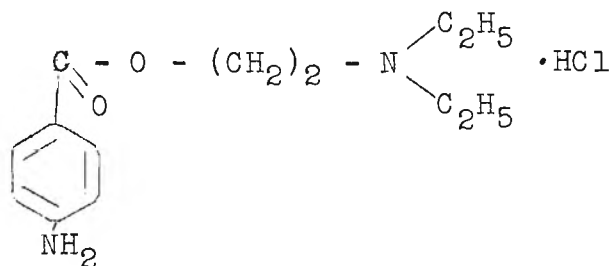
$$\gamma = \frac{1}{\sigma \sqrt{2\pi}} e^{- (x-u)^2 / 2 \sigma^2}$$

$$\text{If } T = (x - u) / \sigma$$

$$\gamma = \frac{1}{\sqrt{2\pi}} e^{-T^2/2}$$

northern spy - a variety of apples that is in season from Sept. to Dec., are excellent sauce and pie apples and good eating apples

novocaine - a nerve block anesthesia



Np - see "neptunium"

NPN - see "nonprotein nitrogen"

Nu (N, ν) - Greek letter with an English equivalent of n; used as a symbol of frequency of light

nucleic acids - complex compounds which on hydrolysis yield phosphoric acid, sugars and one or more bases (purines and pyrimidines)

nucleoproteins - a combination of proteins and nucleic acids; found in animal glands and wheat germ

nucleotide - a molecule consisting of one molecule of phosphoric acid, one molecule of sugar and one molecule of a base

nucleus - the center of an atom that contains the mass made up of protons - positively charged particles, and neutrons - neutral particles

nut - one-seeded fruit contained in a shell

Storage conditions

Temp.	32°F.
Rel. humidity	65%
Freezing pt.	13-25°F.

nutmeg (Myristica fragrans Houtt) - tan fruit (kernel) of nutmeg tree is used as a spice; may be whole or ground; may have a coating of lime;

not less than: 25% non volatile ether extract

not more than: 10% crude fiber

5% total ash

.5% acid insoluble ash

6% volatile oil

nutrition - maintenance of body by absorption of nourishment from food

nylon - see "polyamide"

O - see "oxygen"

oak - over 300 species of a hardwood tree; use - lumber, bark-tanning, acorn-animal feed

oakite - tribasic sodium phosphate ($\text{Na}_3\text{PO}_4 \cdot 12 \text{H}_2\text{O}$); used as a cleaning compound

oak leaf gland - pancreas

oat (Avena) - an annual grain or can be used for hay or grazing; 32 lbs./bu. or 1 lb./qt.; ground oats - .7 lbs./qt.; seed - 2-3 bu./acre; strains - Avena sativa, Avena sterilis, Avena strigosa; pH - 6.0; approx. nutrient used for:
50 bu. grain - 2 tons straw - 1 ton cover crop

32	24	30	lbs. N
13	12	12	lbs. P_2O_5
9	70	50	lbs. K_2O

oat flour - ground oats with bran removed

oatmeal - has been used to indicate ground or cut and rolled oats; see "steel cut oatmeal", "Scotch oatmeal" and "rolled oats"

objective - recorded by a physical instrument; does not depend upon an individual; impersonal opinion; e.g., machine evaluation; lens nearest the object of a compound microscope

obligate aerobes - bacteria that must have oxygen for growth; also see "aerobic"

obligate anaerobes - bacteria which can grow only if there is no oxygen; also see "anaerobic"

obturator - a thigh muscle that covers the obturator foramen and runs to the femur

obturator foramen - a hole in the pelvic bone

octa - eight

octadecanoic acid - stearic acid

odor - stimulation of olfactory receptors in the nasal cavity

offal - parts removed from carcass in dressing; bran and germ removed in milling

off side - right side of a horse

ogden - a variety of soybean

Ohio Improved Chester - a meat type breed of hogs with early breeding similar to the Chester White; it was later crossed with hogs known as Todd hogs; it is solid white with drooping ears

oleic acid $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ - an 18-carbon unsaturated (1-double bond) fatty acid widely distributed in nature; iodine number 90; m.p. 14°C .

oleomargarine (margarine) - term originally applied to margarine made from oleo oils of beef fat; see "margarine"; a plastic food made of animal and/or vegetable fat; min. 80% fat; citric acid, preservative; isopropyl citrates - max. .02% - preservative; stearyl citrate - max. .15% - preservative

oleo oil - liquid fraction separated from animal fats and used in making margarine

olive oil - a non-drying oil obtained by pressing or extracting the fruit of the olive tree (Olea europea sativa); yield 26-60%

.3 - 2.8%	free fatty acid in edible oil	
.5 - 1.5%	unsaponifiable matter	
.915 - .918	specific gravity	
1.470 - 1.472	refractive index (15.5°C .)	
185 - 196	saponification #	
79 - 90	iodine #	
		<u>Contains:</u>
		84% oleic acid
		9% palmitic acid
		4% linoleic "
		2% stearic "

omasum - the third stomach of a ruminant animal located on its right side and often called the "manyplies"; it reduces the water content of food stuffs entering it; a bovine omasum may contain from 2 to 5 gallons

omega (Ω, ω) - Greek letter with an English equivalent of ω

omelet - a mixture of eggs and milk that has been fried

omicron (O, o) - Greek letter with an English equivalent of \circ

-one - I.U.C. ending for ketone compound

onion (Allium cepa L.) - a bulb of condimental vegetable used as food; when eaten by cattle will cause off flavors in milk;

Storage Conditions

Temp.	32°F .
Relative humidity	72%
Freezing pt.	30°F .

onion powder - $6\frac{1}{2}$ oz. of onion powder = 4 lbs. fresh onions

oolong tea - tea made from leaves that have been semi-fermented before steaming, rolling and drying (between black and green tea)

open - not bred

open kettle rendered lard - see "kettle-rendered lard"

open shoulder - shoulder blades too far apart at top

open side - (beef) left side

optical density - logarithmic scale used to measure opacity

$$D = \log_{10} \frac{1}{T}$$

D = density
T = transmission factor

$$D = xD_0$$

x = thickness
D₀ = density of unit thickness

$$D = \log \frac{100}{\% T}$$

optical rotation - α (no brackets) substance with the ability to rotate the plane of polarized light

orange - a citrus fruit; 75% edible;

Storage Conditions

Temp. (varies with variety) 30-37°F.

Rel. humidity 85%

Freeze pt. 28°F.

orange pekoe - black tea made from the 1st opened leaves

orchard grass - a perennial grass used for pasture or hay;

seed - 14 lbs./bu.; harvest when it begins flowering;
pH 5-5.5; variety - Potomac

ordinate (y-axis) - is the vertical axis on rectangular coordinates

oregano (Origanum spp.) - (joy of the mountain); (wild marjoram); (winter sweet); (origany); (origan); (pizza herb); light green dried leaves (5/8 inch in length) in whole or ground form of this herb of the mint family is used in seasoning

organic chemistry - study of carbon containing compounds

organoleptic - affecting an organ; see "sensory"

organology - a microscopic study of the organs

organ - see "oregano"

origany - see "oregano"

origin - stationary (or fixed bone) attachment of a muscle; beginning

Orpington - an English class of chickens with white skin and lays a brown shelled egg; varieties: buff, black, white, blue

ortanique - cross between orange and tangerine

Os - see "osmium"

os - bone

os calcis - see "Tubur calcis"

os coxae - see "Ossa coxarum"

osmium (Os) - an element; at. no. 76; at. wt. 190.2;

oxidation states +3, +4; electron configuration 2-8-18-32-14-2
orbit K L M N O P

osmosis - passage of liquid through a membrane

ossa coxarum - pelvic

ossein - bone collagen produced by decalcifying the bone

osteology - a study of bones

osteomalacia - a disease caused by the removal of calcium and phosphorus from mature bones; caused by a deficiency of calcium, phosphorus or vitamin D

osteoporosis - see "osteomalacia"

ottotan - a variety of soybean

ounce - apoth.; a measure of weight (same as troy ounce);
see "grain", (apoth.)

ounce - avoir (oz. av.)(avoirdupois)(avdp); a measure of weight

1 avoir ounce (oz av) = 2.8350 x 10⁴ milligrams
= 437.5 grains (gr.)
= 28.349527 grams
= 21.875 scruples (apoth)
= 18.22917 pennyweight
= 16 drams (avoir)
= 7.29167 drams (troy)(ap)
= 0.911,458,3 troy or apoth. ounces
(oz t)(ap)
= 0.075954861 troy or apoth. pounds
(lb t)(ap)
= 0.06250 avoir pounds (lb av)
= 0.028350 kilograms (kg)
= 0.00003125 net-short tons (2,000 lb.)
= 0.00002835 metric tons (1,000 kg)
= 0.00002790 gross-long tons (2,240 lb.)
16 oz. = 1 pound

28
128
56.6

ounce - U.S. apoth. measure (oz.)(U.S. fluid)(fl oz); a measure of volume

1 fl. ounce = 499.61 minims (Br.)
 = 480 minims (U.S.)
 = 29.574 cu.cm.
 = 29.5729 milliliters
 = 8 fl. drams (U.S.)
 = 1.80469 cu.in.
 = 1.0409 ounce (Br. fl.)
 = 0.0625 pint (liquid)
 = 0.03125 quart (U.S. liquid)
 = 0.029573 liters
 = 7.8125×10^{-3} gallons (U.S.)
 = 6.5053×10^{-3} gallons (Br.)
 = 1.0443×10^{-3} cu.ft.
 = 2.48×10^{-4} barrels (U.S.)

ounce (avdp)/acre - weight per unit area

1 ounce (avdp)/acre = 70.063 g/ha

ounce (avdp)/square yard - weight per unit area

1 ounce (avdp) sq yd = 33.910 g/m²

outside chuck (top chuck) - muscles lateral to the scapula of which the major ones are triceps brachii (long head), infraspinatus, supraspinatus; see "top chuck"

outside round (bottom round) - made up of semitendinosus and biceps femoris muscle

overhaul - redistributing the cure on a curing meat product

overreach - placing the hind foot ahead of the spot where the front foot was just removed

overweight kip skin - a calf skin weighing between 25 and 30 pounds

ox - cattle; castrated bull

oxalate - Na oxalate combines with Ca and prevents blood from clotting; 160 mg Na oxalate/100 ml blood

Oxford - a medium wool mutton type breed of sheep originating in south central England by crossing of Cotswold rams on Hampshire ewes; it has a medium brown to gray face, no horns and its fleece will grade about $\frac{3}{4}$

Oxford Down - former name of Oxford sheep

oxidase - an enzyme which can cause the oxidation of a substrate by atmospheric oxygen

oxidation - loss of an electron; addition of oxygen; removal of hydrogen

oxidizing agents - a substance which gains electrons and is reduced

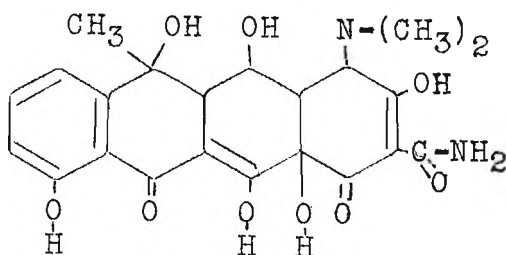
oxtail - skinned tail of ox used for food

ox warbles - the adult heel flies lay eggs on the hair of cattle legs in June; these eggs hatch into larvae that enter the skin and travel through the body to the animal's back; they emerge from the animal's back in February to June and drop to the ground to hatch into heel flies

-oxy- - I.U.C. nomenclature usually used in center of a name to indicate an ether

oxygen (O) - a gaseous element; at. no. 8; at. wt. 16.0000; oxidation state -2; electron configuration 2-6 orbit K L

oxytetracycline (tetracycline) ($C_{22}H_{24}N_2O_9 \cdot 2H_2O$) - mol.wt. 496.46; a broad spectrum antibiotic



oyster [Ostrea virginica (East coast) or lurida (West coast)] - a shell fish, 10-15% weight is meat (10-12% protein)

oyster shells - see "burned oyster shells"; or, "baked oyster shells"

ozone - O_3 ; an oxidizing disinfectant for air

p - para-

P - see "phosphorus"

P₁ - parental generation

Pa - see "protactinium"

PABA - (para-aminobenzoic acid); prevents development of gray hair of mice, dogs, and foxes, on purified diets

packer hides - hides removed using a uniform pattern, and a minimum of cuts and stored under standard conditions

packer's style hog carcass - carcass split, jowls on carcass but head and leaf fat removed

packinghouse - a plant for the slaughter, processing and packing of meat

padding - swinging forefeet outward in a trot or walk

paddock - enclosed area for animals

paddy whack - see "back strap"

paired analysis - when 2 treatments can be made on essentially the same objects. Less original variation between the 2 treatment areas on the same object than there is between adjacent objects

$$D = X_1 - X_2$$

$$\bar{d} = \frac{\sum D}{n}$$

$$d = D - \bar{d}$$

$$d^2 = d \times d$$

$$s_D^2 = \frac{\sum d^2}{n-1}$$

$$s_D = \sqrt{s_D^2}$$

$$s_{\bar{d}}^2 = \frac{s_D^2}{n}$$

$$s_{\bar{d}} = \sqrt{s_{\bar{d}}^2}$$

X_1 = observation of treatment 1 on object 1

X_2 = observation of treatment 2 on object 1

n = number of objects

$$\sum d = 0$$

$$H_0: u_D = 0$$

$$t = \frac{\bar{d} - u_D}{s_{\bar{d}}} \quad df = n-1$$

$$\bar{d} - \left[t_{.05 \text{ or } .01} \right] s_{\bar{d}} \leq u_D \leq \bar{d} + \left[t_{.05 \text{ or } .01} \right] s_{\bar{d}}$$

palatable - pleasing taste

palladium (Pd) - an element; at. no. 46; at. wt. 106.4;
electron configuration 2-8-18-18; oxidation states +2, +4
orbit K L M N

palm (Elaeis guineensis) - a hard shell nut

palmitic acid $\text{CH}_3(\text{CH}_2)_{14}\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$ - a 16-carbon saturated acid

found in all animal and vegetable fats and especially in swine

palmitoleic acid $\text{CH}_3(\text{CH}_2)_5\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ A 16-carbon un-saturated (1-double bond) fatty acid found in liver and animal fats

palm kernel oil - oil extracted from palm kernel of the nut or seed;
0.952 - density
26-30°C - m.p.
247 - saponification #
15 - iodine #

palm oil (palm butter) - oil extracted from the pulp (pericarp) of the palm nut (fruit);

0.920 - 0.927 specific gravity
1.450 - 1.452 refractive index (60°C)
27 - 43°C melting point
196 - 205 saponification #
53 - 57 iodine #

pampus - grassland of the temperate region of South America

panada - a mixture of fat, flour and liquid used as a binder in cooking

Panama - a medium-wool breed of sheep originating in America by crossing Rambouillet rams on Lincoln ewes; this is the same cross that produced the Columbia with the sexes reversed

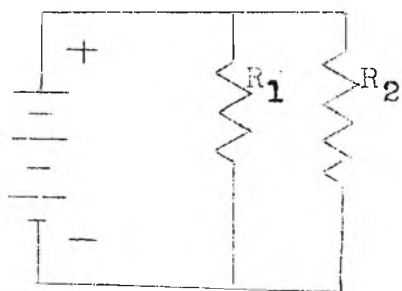
panbroil - a dry heat method of cooking used for the more tender cuts; the meat is placed in a heavy container and the heat is transferred through the container; the fat is drained off during cooking

pancreas - is a gland attached to the gut whose secretions affect digestion and one of its secretions (insulin) regulates sugar metabolism; sometimes known as gut sweetbread (chest sweetbread is the thymus)

pan-fry - cook with a small quantity of fat

panocha - a brown sugar, milk, butter and nut candy

parallel circuits - potential is the same across R



current for each resistor

$$I_1 = \frac{E}{R_1} \quad R_1 = \text{resistance in ohms or 1st resistor}$$

E = voltage

I_1 = ampere in 1st resistor

I_T = total ampere

R_T = resistance total

Total amperage

$$I_T = I_1 + I_2 + \dots + I_n$$

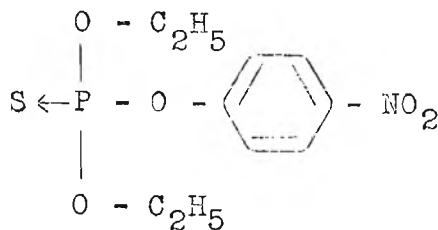
$$R_T = \frac{E}{I_1 + I_2 + \dots + I_n} = \frac{E}{E/R_1 + E/R_2 + \dots + E/R_n}$$

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \dots + \frac{1}{R_n}$$

$$R_T = \frac{(R_1)(R_2)}{R_1 + R_2}$$

Potential sources can be connected in parallel to increase the current; however, they must be of equal voltage.

parathion - a poisonous organic phosphorus agricultural insecticide



parathyroid glands - 4 small glands located close to the thyroid gland and their secretions regulate the blood and nervous systems

parboil - boil food until partially cooked

parboiled rice - rice that is heat treated or steamed under pressure and dried prior to hulling and milling; a greater retention of vitamins and minerals than polished rice

pare - cut off outer covering

pareve (parve) - Jewish cooking term; product is made without milk, meat or their derivatives

parfait - a frozen egg and whipped dessert or ice cream topped with syrup and whipped cream

Paris green (Schweinfurt green) $(\text{CH}_3\text{COO})_2\text{Cu} \cdot 3\text{Cu}(\text{AsO}_2)_2$ - a poisonous inorganic insecticide

parity - ratio between the prices farmers receive and the prices they paid in some base period (may be a specific year or a moving base such as average of the last 10 years)

Parker - a variety of birdsfoot trefoil

parmentier - potato soup

parmesan - a very-hard grating cheese from Italy with a sharp flavor

parrot mouth - upper teeth reaching out over lower ones

parsley - (Petroselinum crispum Mansf.) leaves used for garnishing and seasoning foods

parsnip (Pastinaca sativa) - a vegetable whose root is used as food

Parson Brown - a variety of early Florida orange

partition coefficient (K) (gas chromatography) -

$$K = \frac{\text{wt. of solute/ml. of stationary phase}}{\text{wt. of solute/ml. of mobile phase}}$$

parts per million (p.p.m.)(PPM)(%g)(%ml)(mg/kg) - concentration

= .058 = grains/gallon (U.S.)
 = .070 grains/gallon (Br.)
 = 3.345 pounds/million gallon

<u>w/w</u>	<u>w/v</u>
mg per kilo	mg per liter
.001 mg per gram	.001 mg per milliliter
gamma per gram	gamma per milliliter
microgram per gram	microgram per milliliter

Approx.

ppm	%	Household * Measure per 1000 lbs.	Household * Measure per 1000 gal.
1	.0001	-	1 teaspoon
10	.001	1 teaspoon	8 teaspoons
100	.01	3 tablespoons	1-2/3 cups

* Products with specific gravity of 1.000

parturition - act of giving birth

passover - Jewish festival in which no leaven or cereals likely to ferment are eaten

pastern - area on legs below fetlock and above hoof head

pasteurization - mild heat treatment used to kill the vegetative forms of many bacteria

	<u>30 min.</u>	<u>15 sec.</u>
milk or skim milk	min. 145°F.	min. 161°F.
cream & other milk products	min. 150°F.	min. 175°F.
cream for butter-making	min. 165°F.	min. 185°F.

Cooled immediately to 50°F. or lower.

pasteurized - see "pasteurization"

pasteurized process cheese - a blend of fresh and aged natural cheese that has been heated; may also be mixed with fruits, vegetables, meats, pimentos and smoked flavor

pasteurized process cheese food - similar to pasteurized processed cheese except the fat content is lower and moisture content is higher; it is softer and more bland

pastry flour - see "soft-wheat flour"

pasture (supplementary) - land used for grazing animals

Winter - crimson clover
rye
oats
barley

Summer - millet
sudan grass
soybeans
kudzu
lespedeza

patchy - having lumps of exterior fat

pâté - an unfilled pastry case or small pie

pâté de foie gras - a small potted goose liver pie

patella - kneecap

patent flour - a grade of white flour which may be made from the best 40 to 95% of all the white flour milled (the best subdivision of straight grade flour); it may be subdivided into

extra short patent
short family or first patent
short patent
medium patent
long patent

highest grade



lowest grade

pathogenic - disease producing

pattypan - a summer variety of squash

paunch - see "rumen"

paunchy - too large a belly

Pb - see "lead"

Pd - see "palladium"

pea - a leguminous vegetable whose seed is used as food;
field peas - 2.1 lbs/qt.

peach - (Prunus persica) single seeded fruit

	<u>Storage Conditions</u>
Temp.	31°F.
Relative humidity	85%
Freeze pt.	29°F.

pea grade (dry edible) - U.S. Grades 1, 2, & 3

peak - a variety of clingstone peaches

peak (gas chromatography) - the portion of the chromatogram that indicates that something is going through the detector

peak area (gas chromatography) - area enclosed by peak and peak base

peak base (gas chromatography) - interpolation of base line under peak

peak height (gas chromatography) - from peak base to maximum of peak measured perpendicular to base line

peak width (gas chromatography) - portion of peak base that is enclosed by straight lines drawn tangent to the sides of the peak

peak width at half height (gas chromatography) - a line drawn tangent to the peak sides at one-half the peak height and perpendicular to it

peanut (groundnut)(earthnut)(monkey-nut)(Arachis hypogea) - a legume (nut) which after roasting is used as food

Approx. nutrient required for:	1 ton	1 ton	
	nuts	vine	
	60	39	lbs N
	14	5	lbs P ₂ O ₅
	20	41	lbs K ₂ O

Composition: 21-29% shell
2-3% skin
71-75% kernel & germ

peanut butter - is made from the peanut which has had the germ removed; before grinding the nut has been roasted and blanched; Separation is prevented by hydrogenation and added emulsifiers

peanut meal (fertilizer) - a substance that can be used as a fertilizer material; 7.2 - 1.5 - 1.2

peanut oil (Arachis oil) - oil extracted from peanut

Fatty acid

Saturated		.917 - .920	specific gravity
Carbon atoms	%	1.471 - 1.474	refractive index
16	7		(15.5°C.)
18	5	186 - 195	saponification #
20	4	84 - 102	iodine #
22 (and above)	3	-2°C to -5°C	melting point

Mono unsaturated
18 60

Poly unsaturated
18-2 21

pear - a fruit; 70-80% edible

pearl - a variety of millet

pearl - see "cultured pearl"
 "imitation pearl"
 "nacre"
 "natural pearl"

pearl barley - polished barley grain without the bran and lacking in gluten

pearl hominy - coarse hominy grits; see "hominy grits"

pearl tapioca - dough made from tapioca flour and is then forced through a sieve and then heated to high temp.; usually made in 3 sizes--coarse, medium, or fine

peat - carbonized vegetable matter

pecan - a hard shelled nut

peck - (pk)(U.S.) dry measure

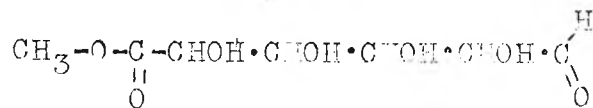
1 peck = 537.6 cubic inches
 = 16 pints
 = 8.809 liters
 = 8 quarts
 = 0.25 bushel

4 pecks = 1 bushel

peck - (pk)(Imperial)(Br.) dry measure

1 peck = 554.6 cubic inches
 = 9.092 liters
 = 8 Br. qt.

pectin - is a water soluble carbohydrate (pectinic acid) polymer made up of varying numbers of the 1 and 4 linkage of methyl esters of β -galacturonic acid



it is found in just ripe fruits and has jellying properties which are used in cooking

pectinic acid - colloidal polygalacturonic acid containing some methyl ester groups; capable of forming gels (jellies) with sugar and acid; see "pectin"

pectorals - muscles that attach the ventral end of the scapula and the dorsal end of the humerus to the sternum; they make up most of the brisket

pedigree - a written record of an animal's ancestry for at least three generations

peel - remove outer covering; outer rind of fruit

pelagic fish - fish that live near the surface of the sea; 55% of fish is edible; examples - herring, mackerel, mullet; edible portion has 16% av. protein, 15% av. fat for herring and mackerel

pellagra - a disease in humans caused by the deficiency of niacin (nicotinic acid); the skin becomes rough and irritated; the mouth becomes sore and the tongue becomes red, sore and swollen; in dogs this disease is called Black Tongue

pelt - sheep skin with the wool attached

pelvis - hip bone that is attached to the femur and is made up of the ischium and ilium areas

pemmican - lean meat dried in the sun and then ground with fat to form a paste or a mixture of dried meat, fruits and vegetables

penicillin - an antibiotic agent produced by the mold Penicillium notatum which is effective against gram-positive and a few gram-negative bacteria

pennyweight (dwt)(Troy) - a measure of mass

- 1 pennyweight = 24 grains
- = 1.555,174,0 grams
- = 1.2 scruples (Apoth.)
- = 0.877,714,3 dram (avoir)
- = 0.4 dram (apoth)
- = 0.054,857,1 ounces (avoir)
- = 0.05 ounces (apoth)(troy)
- = 0.004,166,667 pound (apoth)(troy)
- = 0.003,428,571 pound (avoir)

pentose - 5 carbon sugar (C₅H₁₀O₅)

penuche - brown sugar fudge

pepo - a subdivision of simple fruit; it has a fleshy ovary wall enclosing one or more seeds, attached to a fleshy placenta and has a hard rind covering; examples - cantaloupe, cucumber, squash, pumpkin, watermelon

pepper (Piper nigrum) - a whole or ground spice made from the berries of the pepper vine (a climbing perennial) and used in seasoning; black pepper - unripe fruit - entire berry is used; white pepper - ripened fruit, outside covering removed; red pepper - dried fruit of capsicum - not a true pepper

Standards:

- Black - not less than 6.75% non-volatile ether extract
- not less than 30% starch
- not more than 7% total ash
- not more than 1.5% acid insoluble ash

(cont'd on page 199)

pepper (Piper nigrum) - (cont'd)

Standards:

- White - not less than 7% non-volatile ether extract
- not less than 52% starch
- not more than 5% crude fiber
- not more than 3.5% total ash
- not more than 0.3% acid insoluble ash

pepper (sweet) - 25 lbs./bu.; spacing 18 inches in row 3 feet apart

peppercorns - berries of pepper vine; whole peppers

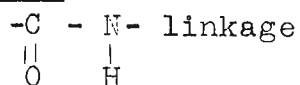
peppermint (Mentha piperita) - dried leaves used for flavor

pepperoni - a dried pork and beef sausage that has a high pepper content; it is dried but not smoked

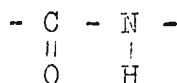
pepsin - an enzyme contained in the stomach gastric juices and acts upon proteins; it is secreted in the inactive form pepsinogen (activated by acid); its optimum pH is 1.5 to 2.5; it can be extracted from the pyloric end of a pig's stomach

pepsinogen - inactive form of pepsin and the form in which pepsin is secreted; it is converted to the active form by hydrochloric acid and pepsin itself

peptide - combinations of 2 or more amino acids joined by



peptide linkage - the linkage which connects most amino acids as they form protein



peptizing - the ability to attack, break down and disperse protein

peptones - polypeptides of small molecular weight which are:

1. water soluble
2. not coagulated by heat
3. not precipitated by saturated ammonium sulfate

percentage dilution problems (approx. results) -I. Dilute with H₂O

Subtract percentage desired from percentage of original and this will give the portion of water that must be added to the portion (same as the desired %) of original

Examples: Have 95% alcohol
Want 35% alcohol 95 - 35 = 60

Solution - 60 parts water to 35 parts 95% alcohol =
95 parts of 35% alcohol

II. Dilute with lower percentage

(a) Subtract percentage wanted from percentage of original (higher) and this equals the parts of lower percentage to be added

(b) Next subtract lower percentage from percentage wanted and this equals parts of higher percentage to be added

Examples: Make 35% from 95 and 20%

95 - 35 = 60 parts of 20% to add
35 - 20 = 15 parts of 95% to add } to give 75 parts
of 35%

percentage values - cannot be averaged without returning to known sample size

percent solutions (by weight) - weight of parts of solute contained in 100 parts of solution; example: 40% solution, 40 parts solute and 60 parts of solvent

perch - see "rod"; fresh water spiny-finned fish

pericarp - outer layer of grain next to husk; major part of bran

perichondrium - connective tissue covering of cartilage

perimysium - connective tissue enclosing primary muscle fiber bundles

periodic ophthalmia - see "moon blindness"

periosteum - external connective tissue covering of the bone

peripheral - see "superficial"

permanganate ion - MnO₄⁻

permutations - the different orders by which objects can be arranged

$$P_r^n = n(n-1)(n-2)(n-3)(n-4) \dots (n-r+1)$$

P = # of permutations

n = total number of objects

r = # taken at a time

Example - letters X, Y, Z can be arranged in how many orders using 2 letters at a time?

n = 3	P = 3 · 2 = 6	XY
r = 2		XZ
		YX
		YZ
		ZX
		ZY

see "combinations"

permutite - trade name of silicates used to soften water;
see "hardness of water"

peroxide value analysis - is an indication of oxidation that has taken place by measuring the substances in fat that will oxidize potassium iodide and is expressed as the milliequivalents of peroxide per kg. of fat; it is determined by adding saturated potassium iodide to a solution of fat, chloroform, glacial acetic acid and HCl; the liberated iodide is titrated with a standardized sodium thiosulfate solution; during oxidation, the peroxide value increases, reaches a peak and then decreases

Persian lamb - tightly curled Karakul lamb skin

pestle - see "mortar and pestle"

petals - part of a flower

petit four - a small decorated tea cake

petri dish - shallow dish

petroleum ether - low boiling hydrocarbons (principally pentanes and hexanes) from petroleum; B.P., 30-80°C.

petsai - a vegetable whose leaf is used as food

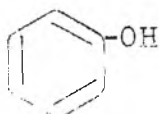
pH - degree of acidity; fresh meat - 5.3 to 6.0
normal human blood - 7.3 to 7.5
pure water - 7.0

is the negative logarithm (base 10) of the H-ions concentration; the range is from 0 to 14 with 7 being neutral; pH values greater than 7 indicate an alkaline solution while values less than 7 indicate an acid solution;

$$\text{pH} = \log_{10} \frac{1}{[\text{H}^+]} = -\log_{(10)} [\text{H}^+]$$

phalangeal bone - foot bones just above the toes

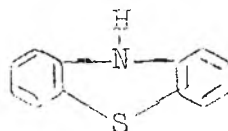
phenol - (carbolic acid); organic compounds in which one or more of the hydrogen atoms in the aromatic ring have been replaced by a hydroxyl group



phenolphthalein - $C_{20}H_{14}O_4$; an indicator used when titrating weak acids; its pH range is 8-10; it is colorless in an acid solution; pink to red at pH 9 and above; .2g/100 ml alcohol

phenol red - acid-base indicator

phenothiazine -



Recommended treatment for internal parasites

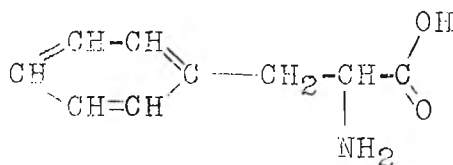
1 part to 12 parts with salt -- continuous administration

For sheep - dose: 15 to 25 g (approx. 3/5 to 1 oz.)

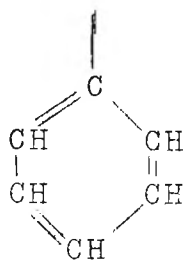
For cattle - dose: 10 g/100 lbs. body weight (maximum 60 grams) must be done when cattle are dry (causes red discoloration of milk)

For swine - dose: 12-30 grams

phenylalanine - an aromatic amino acid



phenyl group -



phi (Φ, ϕ) - Greek letter with an English equivalent of ph.

-philia - loving, tending toward

-philic - adjective ending meaning loving, tending toward

Phillipps - a variety of clingstone peaches

phosphate - any salt of phosphoric acid; 0.5% permitted in finished products such as cured hams and shoulders and canned chopped ham

sodium tripolyphosphate - $\text{Na}_5\text{P}_3\text{O}_{10}$

sodium hexmetaphosphate - Grahams salt $(\text{NaPO}_3)_6$

sodium acid pyro-phosphate - $\text{Na}_2\text{H}_2\text{P}_2\text{O}_7$

sodium pyrophosphate - tetra sodium pyrophosphate =
 $\text{Na}_4\text{P}_2\text{O}_7$

disodium phosphate - sodium phosphate dibasic = Na_2HPO_4

monosodium phosphate - sodium phosphate monobasic =
 NaH_2PO_4

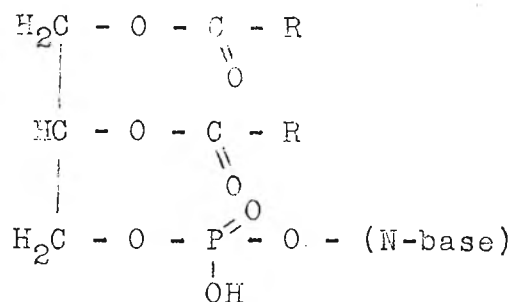
No more than 5% of such phosphate may be in pickle
50 lbs/100 gallon pickle (10% pump)
canned chopped hams - 8 oz./100 lbs. of fresh uncured ham
Not permitted in beef products
Also see the phosphate terms

phosphate rock - a fertilizer material; $\text{Ca}_{10}(\text{PO}_4)_6 \cdot \text{F}_2$
33% total P_2O_5

phosphatide - a phosphoric ester lipid; used in food or emulsifiers; see "phospholipide"

phosphine - PH_3 ; poisonous gas

phospholipide - fat-like chemicals which also contain phosphorus and nitrogen; when subjected to hydrolysis phospholipides yield glycerol, fatty acids, phosphoric acid and a nitrogenous base; two of the best known examples are lecithins and cephalins



phosphoproteins - phosphoric acid is ester linked to a protein through a hydroxy amino acid; e.g., casein, vitelline

phosphoric acid (H_3PO_4) - Mol. wt. 98; m.p., $41^\circ C$

<u>Commercial strength:</u>	<u>% by wt.</u>	<u>Specific gravity</u>	<u>M.</u>
	85	1.689	14.7
	87	1.711	15.2

ml of 85% H_3PO_4 to dilute to 10 l. approx. normality

230

1.00

used as an acidulant and flavor in soft drinks

types of phosphoric acid:

orthophosphoric acid - H_3PO_4

metaphosphoric acid - HPO_3

pyrophosphoric acid - $H_4P_2O_7$

phosphorus (P) - an element; at. no. 15; at. wt. 30.975;

oxidation states +3, +5, -3; electron configuration 2 8 5
orbit K L M

body function - in bones (as calcium phosphate Ca_3PO_4),
buffer action, lecithins, proteins, and
nucleic acid

<u>Food</u>	
<u>High</u>	<u>Low</u>
cereals, legumes meat and milk products eggs, fish	fruit

photosynthesis -

salt + CO_2 chlorophyll \rightarrow complex food

physiological saline - 0.9% sodium chloride in water; can be
used as an isotonic solution of NaCl when dealing with
mammals

pi (II, π) - Greek letter with an English equivalent of p;
In math $\pi = 3.14159$

pica - see "osteomalacia"; printers type; 1 inch = 6 picas;
desire for unnatural food

pickle - a brine or vinegar solution; in relation to meat the
common ingredients are salt, sugar, sodium nitrate, sodium
nitrite (not acid or vinegar)

- pickled pigs' feet - clean pigs feet; submerge in 75 degree pickle for several weeks; cook; chill and remove meat; place in hot vinegar solution of 50% vinegar, 50% water, 1 teaspoon salt/pint; and seal in jars
- picnic - is the lower area of the pork shoulder; may or may not be cured and smoked
- pico- - (one-trillionth) 0.000 000 000 001; prefix for quantities smaller than the base unit
- pie - baked crust with various fillings
- pig - young swine, 120 lbs. or under, either sex;
Sus scrofa - European
Sus vittatus - Eastern Asiatic
- pigeon toed - front feet pointed in
- piggin' string - a 3-foot ($\frac{1}{4}$ inch) rope used to tie 3 of a calf's feet together after he has been roped
- pigment - substances that absorb radiant energy in the visible spectrum
- pigs-foot jell - a jell made by cooking pigs feet, hearts, tongues, and hocks in water, removing the bones and letting jell
- pig souse - see "pigs-foot jell"
- Pike's Peak - muscles of the hind shank
- pilaf - see "pilau"
- pilau - a dish of rice, raisins, meat and spices
- pilaw - see "pilau"
- pimienta - see "paprika"
- pimiento - see "paprika"
- pinbone (on carcass) - crest of ilium
- pinbone (on live animals) - boney structure on each side of the tail head (ischial tuberosity)
- pinbone (sirloin) - a sirloin steak found in the loin end wholesale cut; it is located in front of the double bone sirloin; it is the first sirloin on the short loin end of the loin end cut
- pineal gland - reddish gland located behind and above the pituitary and it regulates child growth, puberty and maturity
- pineapple - fruit of tropical plant (Ananas comosus); 50% edible; a variety of midsummer Florida orange; an American hard cheese
- pine tar - a fly repellent made from distillation of pine wood
- pink champagne - a rose pink wine with a fruity flavor
- pinkelwurst - an imitation cooked sausage made of beef fat, oat groats, water and onions

pink eye - a disease of cattle which results in red and irritated eyes and eyelids; it forms a white scum over the eye and often causes blindness

pint (Br. fluid)(Imp.) - a liquid measure

1 pt (Br.) = 568.25 ml.
 = 20 ounces (Br. fl.)
 = 1.20094 pint (U.S.)
 = 0.568 liter

pint (U.S. fluid)(pt.) - a liquid measure

1 pt (U.S.) = 473.179 cubic centimeters
 = 473.167 ml
 = 28.875 cubic inches
 = 16 U.S. fluid ounces
 = 4 gills (U.S.)
 = 0.83268 pint (Br.)
 = 0.4732 liter

2 pints = 1 quart

4 qts. = 1 gal.

pipe - a 105 imperial gallon cask for wine

pipette - an apparatus to measure volume; opaque band at top of pipet (calibrated for blowout); indicates pipet should be blown out to get calibrated quantity; see "TC" and "TD"

pistil - part of a flower that contains the ovary

pit - remove fruit stone

pithing - destroying the medulla oblongata of the brain during slaughter with a metal rod

pituitary gland - grayish yellow gland located at the base of the brain and is made up of 2 sections

I. Anterior lobe

- (a) thyroid stimulating hormone
- (b) growth promoting hormone
- (c) mammary stimulating
- (d) adrenal cortex stimulating
- (e) gonad stimulating

II. Posterior lobe

- (a) regulates energy metabolism
- (b) controls blood pressure and pulse rate
- (c) regulates contractile organs

pK values - is the logarithm (to base 10) of the reciprocal of the equilibrium constant; $pK = \log_{10} \frac{1}{K_{cq}}$

Pl - private label

plain chocolate - same as bitter chocolate; see chocolate

plain condensed milk - min. 7.9% milk fat; min. 25.9% total milk solids

plain condensed skimmed milk - min. 20% milk solids, not fat

Planck's constant (h) - a measure of action; 6.63×10^{-27}
erg-seconds

planimeter - an instrument used to measure irregular areas

plasma - liquid or non-cellular portion of the blood, lymph
or milk; serum is plasma which has had the fibrinogen
removed

plastic range - temperature range over which a shortening re-
mains readily workable

plate - about 12% of a choice steer carcass

plate count - a procedure for estimating the number of bacteria
by growing the cell into a colony which can be seen by the
eye

platelets (blood) - disk shaped cells in the blood; average
50,000/cu. millimeter of blood

platinum (Pt) - an element; at. no. 78; at. wt. 195.09;
electron configuration 2-8-18-32-16-2
orbit K L M N O P
oxidation states +2, +4

platter - large plate

Pliofilm - trademark of Goodyear Tire & Rubber Co.; rubber -
hydrochloride; clear plastic

pluck - organs in the thoracic cavity and consists of heart,
lungs, gullet and windpipe

plum (Prunus) - a fruit; 91% edible; dried plum - prune

plutonium (Pu) - a rare earth element; at. no. 94; mass number
of most stable isotope 242; electron configuration
2-8-18-32-23-9-2
orbit K L M N O P Q

oxidation states +3, +4, +5, +6

Plymouth Rock - an American class of chickens that lays a
light brown egg;

<u>Varieties</u>	<u>Plumage color</u>	<u>Shank</u>	<u>Beak</u>
Barred*	Gray white with a dark bar across each feather	yellow	yellow
White*	White	Dark yellow	yellow
Bufs	buff (golden)	Dark yellow	yellow

(cont'd on page 208)

Plymouth Rock - (cont'd)

<u>Varieties</u>	<u>Plumage color</u>	<u>Shank</u>	<u>Beak</u>
Silver- penciled	♂ neck & back white with black edging of feather; rest of body black with some white	Yellow	Yellow
	♀ gray with black penciling; gives lacy appearance	Light yellow	Yellow
Partridge	♂ neck & back feathers green black with red edging, rest of body darker slate	Yellow	Yellow
	♀ neck & back feathers black with red lacing, rest of body slate	Light yellow	Yellow
Columbian	Mostly white, neck & tail feathers are black with white lacing	Yellow	Yellow with a dark stripe
Blue	♂ primarily slate blue with feathers laced with black, upper sections dark appearance	Yellow	Yellow
	♀ primarily even shade of slate blue with narrow black lacing	Light yellow	Yellow

*Bantam also.

Pm - see "promethium"

pneumonia - inflammation of the lungs

Po - see "polonium"

poach - cook in hot liquid

point - printer's type; 1 inch = 72 points

point of sales material - advertising to be used by retailer

point of shoulder - lower end of shoulder blade

poise - measurement of viscosity of a liquid; number of grams/centimeter/second

1 poise = 100 centipoise

= 2.089×10^{-3} pound (weight) second/sq ft.

= 0.067 pound (mass) foot-second

poivrade - brown sauce with pepper

Poland China - a meat type breed of hogs originating in South-western Ohio with much the same early breeding as the spotted Poland China; the Berkshire and Irish Graziar were then used to improve the type and these contributed the solid color which is black preferably with 6 white points and has a drooping ear

polar - substance with high dielectric constant; i.e., water

polarimetry - an optical analysis based upon the rotation of polarized light when it passes through a solution

pole - see "rod"

policeman - a stirring rod made of glass and fitted with a rubber tip; used for loosening precipitates from glassware

polished rice - rice grain with husk and bran removed

Polish sausage - coarsely chopped beef and pork that is normally made into 6-inch lengths

poll - top of head; cut horns

polled (muley) - naturally hornless; absence of horns

Inheritance of horns

(1) Horned cattle (xx) X homozygous polled cattle (yy) --
 ———> offspring heterozygous polled (xy)

(2) Horned cattle (xx) X heterozygous polled cattle (xy) --
 ———> $\frac{1}{2}$ offspring horned (xx) and $\frac{1}{2}$ offspring heterozygous polled cattle (xy)

x - gene for horned

y - gene for polled

xy - heterozygous polled

Polled Cattle Herdbook - early name of Aberdeen Angus Cattle Society

Polled Hereford - similar to the Hereford Cattle except that they have no horns; the cattle can be registered as both a Hereford and as a Polled Hereford; origin - Warren Gammon of Des Moines, Iowa, started the breed from polled mutants of registered herefords; polled characteristic is a dominant trait; see "Double Standard Polled Hereford", and "Single Standard Polled Hereford"

Polled Shorthorn - Shorthorn cattle without horns; registered in Shorthorn Herdbook; see "Single Standard Polled Durham", and "Double Standard Polled Shorthorn"

poll evil - a running sore behind the ears

polonium (Po) - an element; at. no. 84; mass number of most stable isotope - 210; electron configuration 2-3-13-32-18-6
 orbit K L M N O P

oxidation state +2, +4

poly- - many

- polyamide - a tough, shrinkable, clear film with low O₂ and water permeability
- polybasic acid - acid with more than one replaceable hydrogen; see "dibasic acid", and "tribasic acid"
- polyester - a tough film that will remain flexible through a wide range of temperature; hard to seal on conventional equipment; coating with polyethylene provides heat sealing properties; it is shrinkable, clear and has low O₂ and water permeability; base film for cooking directly in package
- polyethylene - a film that is available in several densities; it has good strength, heat sealing properties, high O₂ and low H₂O permeability; often used as a sealing agent in laminates
- polyethylene (laminated) - a film that is relatively impermeable to air and moisture; used for vacuum inert gas packaging
- polymorphism - the property of a substance to solidify in different crystal forms; i.e., fat
- polypropylene - a film of high tensile strength, high grease resistance, heat sealing, medium O₂ and low water permeability
- polysaccharide - a large class of natural carbohydrates
- polyvinyl chloride - stretchable clear film that is heat sealing and has a high O₂ transmission rate
- pomace (pummace) - ground apples or fruit; residue left after extracting the oil from the castor bean or fish
- pomace wine - made by extracting marc or pomace with sugar solutions and fermenting the extract
- pome - a subdivision of simple fruit; its ovary is a paper-like inner portion and around this is the fleshy part of the plant; i.e., apple, pear
- pony - a young or small horse usually considered under 14.2 hands
- pop - carbonated flavored beverage
- popcorn (Zea mays everta) - Indian corn that explodes when exposed to dry heat
- Pope's Eye - lymphatic gland in leg of mutton and beef
- popover - thin batter baked into a hollow shell
- poppy seed (Papaver somniferum L.) - tiny blue seed of poppy plant used as seasoning; no narcotic content
- poppyseed oil - obtained by pressing seed of poppy (Papaver somniferum)

0.924 - 0.927 specific gravity
 1.476 - 1.478 refractive index (15.5°C)
 189 - 197 saponification #
 133 - 158 iodine #
 minus 18°C solidifies

porcine - pertaining to swine

porc salé aux choux - salt pork and cabbage

pork - flesh of swine; 1 barrel = 220 lbs.

pork roll - chopped pork is cured and placed in a muslin container; it is then held until a tangy flavor develops; it is normally cooked but not smoked

pork sausage - sausage made from ground fresh pork with seasoning added

3/16 inch plate

Max. - 50% trimmable fat

Min. - 9.4% protein

Max. - 3% added water

May be fresh or smoked pork

Country-style - 75% lean, 1/4-inch plate

Storage temp. - 28-30°F.

pork sausage seasoning - 30 oz. salt, 6 oz. black pepper, and 2 oz. sage per 100 pounds of meat; for hot sausage, add 6 oz. or red pepper

pork with barbecue sauce - Min. 50% meat (wt. of cooked and trimmed meat) or 72% uncooked meat

port du salut - a semi-hard cheese; slightly milder than Oka

porterhouse - first steaks taken from the hip end of the short loin

Porto Rico - a moist sweet variety of sweet potato

port wine - a ruby-red wine with a sweet, rich flavor

positron - a positive charged particle of the same weight and size of charge as an electron

charge + 4.802×10^{-10}

atomic wt. 5.48×10^{-4}

diameter 2.8×10^{-13}

posterior - see "dorsal" (back); in comparative anatomy, see "caudal" (tail)

posterior pituitary - see "pituitary gland"

post-mortem - after death, or slaughter

potable - drinkable

potage - thick soup

potash - potassium compound

potassium (K) - an element; at. no. 19; at. wt. 39.100;

electron configuration 2-8-8-1; oxidation states, +1
orbit K L M N

body function - in all vegetable and animal cells

potassium metaphosphate - KPO_3 ; a fertilizer material 0-58-35

potassium nitrate - KNO_3 ; (saltpeter)(niter); used in meat curing

potassium nitrite - KNO_2 ; used in meat curing

potassium permanganate - (KMnO_4^-); an oxidizer

gram equivalent wt. KMnO_4 (oxidizing agent in acidic sol)
= $158/5 = 31.6 \text{ g}$

gram equivalent wt. KMnO_4 (oxidizing agent in nonacidic sol)
= $158/3 = 52.7 \text{ g}$

potassium sulfate - K_2SO_4 ; a neutral fertilizer material; 0-0-48

A potassium fertilizer that can be used where chlorine is harmful

potato (Irish)(Solanum tuberosum) - a tuberous root eaten as a vegetable; 60 lbs/bu.; seed - 1500 lbs/acre; size of seed approx.- $1\frac{1}{2}$ oz.; spacing - 10 in. in row 3 feet apart; Approximate nutrient used to grow:

<u>200 lbs tubers</u>	<u>tops</u>	
43	60	lbs. N
17	10	lbs. P_2O_5
77	55	lbs. K_2O

Storage conditions: Temp. $38-42^\circ\text{F}$
RH 87%
Freezing pt. 28°F

potato (sweet)(Ipomoea batatas) - a tuberous root eaten as a vegetable; 56 lbs/bu - green

47 lbs/bu - cured

Spacing - 6 to 12 inches in rows $3\frac{1}{2}$ feet apart

Curing - 5-8 days at 85°F and 90°F relative humidity

Storage - 55°F

potato chips - a deep fat fried, thin sliced potato; max. 3% H_2O

potato flour - dried potato

potato grades - USDA Grades: U.S. Fancy
No. 1
U.S. Commercial

potato peeling - 1. mechanical (abrasive) - 20% loss
2. flame (boiling saturated soft brine, 2000°F for 30 sec., washing)
3. lye or caustic soda

potato starch (farina) - made from potato and used as a stabilizing agent

potential - volts are used to measure electrical potential

potentiate - to have power

potentiometer - variable resistor with connections on both ends of the resistor

Potomac - a variety of orchard grass

pot roasting - see "braising"

poultry - birds domesticated for economic value

poultry by-product meal - dry rendered, ground tissue of poultry exclusive of feathers, gizzard and intestinal contents

poultry dressing percentage -

<u>ready to cook wt.</u> =	broilers-fryers	70
<u>live weight</u>	hens	74
	turkey fryers	74
	turkey hens and toms:	
	small	76
	large	80

poultry grades - U.S. Grade A
 U.S. Grade B
 U.S. Grade C

poultry in sausage - chicken and turkey may be added to a max. of 15% of comminuted cooked product (excluding water) without using a poultry name. If poultry is used in the name of the product there is no limit to the quantity used. Must be declared in ingredients. Ratio of poultry skin to muscle must be in same proportions as in the whole bird. Kidney and sex glands cannot be included. All meat product must have the poultry skin removed. All-beef product can contain no poultry

pound (Apoth.) - a measure of weight; same as troy lb.

pound (avoir)(lb av)(avoirdupois) - (US or Br.), a measure of weight

1 avoir pound (lb av)	= 4,5359 x 10 ⁵ milligrams
	= 7,000 grains (gr.)
	= 453.592,427,7 grams
	= 350 scruples (apoth)
	= 291.666,7 pennyweight (dwt)
	= 256.00 drams (avoir)
	= 116.666,7 drams (troy)(ap)
	= 16 avoir ounces (oz av)
	= 14.583,333 troy ounces (oz t)(ap.)
	= 1.215277,8 troy pounds (lb t)(ap.)
	= 0.45359 kilograms (kg)
	= 0.00050 net-short tons (2,000 lb)
	= 0.0004536 metric tons (1,000 kg.)
	= 0.0004464 gross-long tons (2,240 lb)

pound (troy)(lb.t.)(apoth)(U.S. or Br.) - a measure of weight used for weighing gold, silver and jewels (same as apothecaries pound)

1 troy pound (lb.t.) = 3.7324×10^5 milligrams
 = 5,760 grains (gr.)
 = 373.241,77 grams
 = 288 scruples (℥)(apoth)
 = 240 pennyweight (dwt)(troy)
 = 210.651,4 drams (avoir)
 = 96 drams (ʒ)(troy)(ap)
 = 13.165,714 avoir ounces (oz av)
 = 12 troy ounces (oz t)(ap.)
 = 0.822,857,1 avoir pounds (lb av)
 = 0.37324 kilograms (kg)
 = 0.0004114 net-short tons (2,000 lb)
 = 0.0003732 metric tons (1,000 kg)
 = 0.0003674 gross-long tons (2,240 lb)

pound (avdp) per acre - weight per unit area

1 pound (avdp)/acre = 1.121 kg/ha

pound per bushel - U.S., a measure of density -- specific weights

1 = 21.6962 pounds per cubic yard (lb/yd³)
 = 12.8718 kilograms per cu.meter (kg/m³)
 = 0.80356 pounds per cubic foot (lb/ft³)
 = 0.125 pounds per gallon, dry (U.S.)
 = 0.10742 pounds per gallon, liquid (U.S.)
 = 0.01287 grams per cubic centimeter (g/cm³)
 = 0.0004650 pounds per cubic inch (lb/in³)

pound per cubic foot - lb./ft³, a measure of density

1 = 27 pounds per cubic yard (lb./yd³)
 = 16.0184 kilograms per cubic meter (kg/m³)
 = 1.24446 pounds per bushel (U.S.)
 = 0.15556 pounds per gallon dry, (U.S.)
 = 0.13368 pounds per gallon, liquid (U.S.)
 = 0.01602 grams per cubic centimeter (g/cm³)
 = 0.0005787 pounds per cubic inch (lb./in³)

pound per cubic inch - lb./in³, a measure of density

1 = 46,656 pounds per cubic yard (lb./yd³)
 = 27,679.7 kilograms per cu. meter (kg/m³)
 = 2,150.42 pounds per bushel (U.S.)
 = 1,728 pounds per cubic foot (lb./ft³)
 = 268.803 pounds per gallon dry (U.S.)
 = 231 pounds per gallon, liquid (U.S.)
 = 27.6797 grams per cu. centimeter (g/cm³)

pound per cubic yard - lb./yd³, a measure of density

- 1 = 0.59327 kilograms per cu. meter (kg/m³)
- = 0.04609 pounds per bushel (U.S.)
- = 0.03704 pounds per cubic foot (lb/ft³)
- = 0.005762 pounds per gallon, dry (U.S.)
- = 0.004951 pounds per gallon, liquid (U.S.)
- = 0.0005933 grams per cubic centimeter (g/cm³)
- = 0.00002143 pounds per cubic inch (lb/in³)

pound per foot - mass (weight) per length

- 1 = 14.88 grams/centimeter
- = 1.488 kilograms/meter

pound per gallon (dry) - U.S., a measure of density -- specific weights

- 1 = 173.570 pounds per cubic yard (lb./yd³)
- = 102.974 kilograms per cubic meter (kg/m³)
- = 8 pounds per bushel (U.S.)
- = 6.42851 pounds per cubic foot (lb./ft³)
- = 0.85937 pounds per gallon, liquid-U.S.
- = 0.010297 grams per cu. centimeter (g/cm³)
- = 0.003720 pounds per cu. inch (lb./in³)

pound per gallon (liquid) - U.S., a measure of density

- 1 = 201.974 pounds per cu. yard (lb./yd³)
- = 119.826 kilograms per cu. meter (kg/m³)
- = 9.30920 pounds per bushel - U.S.
- = 7.48052 pounds per cu. foot (lb./ft³)
- = 1.16365 pounds per gallon, dry - U.S.
- = 0.11983 grams per cu. centimeter (g/cm³)
- = 0.004329 pounds per cu. inch (lb./in³)

pound per square foot - a measure of pressure

- 1 pound per sq. ft. (psf) = 0.35911 millimeters (columns of mercury, Hg. 13.59593 sp g)
- = 0.01602 feet (columns of water, max. density at 4C, 39F)
- = 0.01414 inches (columns of mercury, Hg. 13.59593 sp g)
- = 0.006944 pounds per sq. inch (psi)
- = 0.004882 meters (columns of water, max. density at 4C, 39F)
- = 0.0004882 kilograms per sq. centimeter (kg/cm²)
- = 0.0004725 atmospheres, standard (760 mm)

pound per square inch - (psi), a measure of pressure

1 pound per sq.inch (psi) = 144 pounds per sq. foot (psf)
 = 51.7116 millimeters (columns
 of mercury, Hg. 13.59593 sp g)
 = 2.30665 feet (columns of water,
 max. density at 4C, 39F)
 = 2.03588 inches (columns of
 mercury, Hg. 13.59593 sp g)
 = 0.70307 meters (columns of
 water, max. density at 4C,
 39F)
 = 0.07031 kilograms per sq.
 centimeter (kg/cm²)
 = 0.070 kilograms per sq.
 centimeter

powdered sugar - pulverized granulated sugar

XX powdered - coarse

XXXX powdered - fine

P.P.-factor - see "niacin"

ppm (PPM) - see "parts per million"

Pr - see "praseodymium"

pract. - see "practical"

practical - practical, grade, (pract.); a designation of a
 grade of chemical purity; a medium purity grade that is
 suitable for most syntheses

Chemical grades according to decreasing purity:

1. Primary standards
2. Spectro grade
3. Reagent
4. A.C.S.
5. Chemically pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or commercial

practical top - next highest price payed below "top" when
 "top" is out of line with the days market

praline - a burnt almond candy or a brown sugar-pecan cake

praseodymium (Pr) - a rare earth element; at. no. 59;

at. wt. 140.92; electron configuration 2-8-18-20-9-2;
 orbit K L M N O P

oxidation state +3

prawn - a shell fish; 50% edible (av. 20% protein)

pre- - before

precipitate - separate from solution

precipitated lime - a liming material composed of 80-95% CaCO_3

and each pound has the neutralizing equivalent of .85 to 1 pound of CaCO_3 (or approximately this quantity of dolomitic limestone)

pregnancy - being with young; time from conception to birth; see "gestation period" for duration of animals

prepotency - unusual ability of an animal to make its young resemble the parent

preserves - fruit in its original or cut shape packed in a heavy syrup; (approx. 3/4 pound of sugar/lb. of fruit)

pressure (water) -

.433 lbs/sq.in. of base in a column of water 1 foot high (pressure)

1 lb/sq.in. of base is a column of water 2.31 ft. high
Feet of Head (water) = (2.31)(lbs. pressure/sq.in.)

lbs. pressure/sq.in. = (.433)(feet of head of water)

pressure cooker - an air tight vessel used to cook by means of super heated steam under pressure

pretzel - a crisp salted cracker in a knot shape

primal cuts (hog carcass) - Boston butt, picnic, loin, ham, belly; 43 to 55% of live hog weight

primary muscle fiber bundles - bundles made up of muscle fibers bound together by perimysium

primary standards - (Pri. Std.), a designation of a grade of chemical purity; this is the highest grade of purity and can be used for direct preparation of standard solutions; Chemical grades according to decreasing purity:

1. Primary standards
2. Spectro grade
3. Reagent
4. A.C.S.
5. Chemically pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or commercial

prime-steam lard - lard rendered in a closed container with steam

Pri. Std. - see "primary standards"

pritch stick - a stick sharp on both ends used to hold a beef carcass on its back while removing the hide; one end is secured in the floor and the other end in the brisket

probability - the likelihood of an event taking place

$$\text{Probability of } a = \frac{a}{a + b}$$

a = number of ways event "a" can occur

b = number of ways event "b" can occur

p = probability of success

1 - p = probability of failure

probability of 2 independent events occurring simultaneously (P)

$$P = q \times r$$

q = probability of first event

r = probability of second event

Probability (P) that 2 mutually exclusive (If one happens, the other cannot happen) events will occur.

$$P = q + r$$

q = probability of 1st event

r = probability of 2nd event

Probability that an event will occur r times in n trials is:

$$p = \frac{n(n-1)(n-2) \dots (n-r+1)p^r (1-p)^{n-r}}{r!}$$

p = probability of it occurring on a single trial

probable error (r)(R) - a method of expressing error for a single observation and an average of a series of observations such that the numbers of errors greater than the probable error is equal to the number of errors less than the probable error

Probable error of a single observation

$$r = \pm 0.6745 \sqrt{\frac{\sum(v^2)}{n-1}}$$

$\sum(v^2)$ = sum of squares of deviation from the average

n = number of observations

Probable error of an average of measurements (R)

$$R = \pm .6745 \sqrt{\frac{\sum(v^2)}{n(n-1)}}$$

Probable error = 0.6745 mean square error

Probable error = 0.8453 average error

process cheese - a mixture of fresh and aged natural cheese that has been pasteurized. May have added flavors.

process cheese food - similar to "process cheese" but may have added:

1. nonfat dry milk
2. whey solids
3. water

process cheese spread - similar to process cheese foods but with higher moisture and lower milk fat content

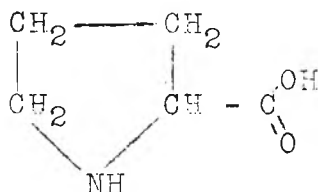
profundus - deep

progesterone - $C_{21}H_{30}O_2$; a drug isolated from bovine ovaries which can be used in treatment of potential abortion and severe dysmenorrhea

prolamin - a simple protein that is insoluble in water, dilute salt solutions or absolute alcohol but soluble in 70-80% alcohol

prolificacy - bearing many young

proline - a heterocyclic amino acid



promethium (Pm) - a rare earth element; at. no. 61; mass number of most stable isotope 147; oxidation states +3; electron configuration 2-8-18-23-8-2 orbit K L * N O P

promoter - substance which enhances the activity of a catalyst

proof - (U.S.), a measurement of alcoholic strength;

1 degree of proof = $\frac{1}{2}$ of % alcohol (by volume)

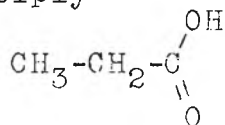
Ex., 90 proof = 45% alcohol

proof spirit - see "proof", and "British Proof Spirit"

pro-oxidant - a substance which speeds oxidation

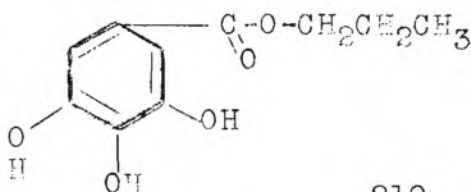
propagate - to multiply

propionic acid -



A 3C saturated acid sometimes found as a free fatty acid in natural fat

propyl gallate - an antioxidant used to retard rancidity in fat; .01% in fat (total antioxidant -0.02% in combination)



- prosciutti - a dry cured ham coated with black pepper and originating in Italy
- prosthetic - additional
- protactinium (Pa) - a rare earth element; at. no. 91; at. wt. 231; oxidation states +5, +4; electron configuration 2-8-18-32-20-9-2
orbit K L M N O P Q
- protamines - simplest natural proteins which contain only a few amino acids (mostly arginine); they are basic, water soluble and not coagulated by heat; found in sperm cells
- protein - large complex polymers of α -amino acids linked through peptide bonds
- protein determination - see "Kjeldahl determination"
- proteolytic - enzymes which act on proteins
- proteose - hydrolytic products of proteins that are:
1. water soluble
 2. not coagulated by heat
 3. precipitated by saturated ammonium sulfate
- proton - a positively-charged particle in all atomic nuclei; physically, it is similar to the nucleus of hydrogen; charge + 4.802 x 10⁻¹⁰ absolute electrostatic units (esu) atomic wt. - 1.0076 diameter - 2.8 x 10⁻¹³ cm
- protoplasm - the basic material of all cells
- protozoa - a single cell animal
- provençal, à la - with olive oil, lemon juice, parsley and garlic
- provolone (provolette)(provoloncini)(salami provolone) - an Italian hard cheese
- proximal - point nearer, closer
- proximate analysis - chemical analysis of water, protein, fat, carbohydrate and ash
- prune - (Prunus domestica); a fruit; 83% edible; often dried; dextrose primary sugar
- psi (Ψ , ψ) - Greek letter with an English equivalent of ps
- psoas major - muscle of the lumbar area that lies under the lumbar vertebrae; in cross section it is larger and more dorsal than the psoas minor; in combination with the psoas minor, it is often called the tenderloin or fillet
- psoas minor - muscle of the lumbar area that lies under the lumbar vertebrae; see "psoas major"

psychrophilic bacteria - bacteria that grow at a low temperature;
 minimum growth temperature -5 to +5°C;
 optimum growth temperature 20 to 30°C;
 maximum growth temperature 35 to 45°C;

<u>bacteria genera</u>	<u>mould genera</u>
Achromobacter	Cladosporium
Flavobacterium	Mucor
Pseudomonas	Penicillium
	Thamnidium

Pt - see "platinum"

ptomaine poisoning - ptomaine means decarboxylated amino acids;
 they are not detrimental to health when eaten so this is a
 misnomer; as used today, synonymous with staphylococcus
 food poisoning

Pu - see "plutonium"

puberty - age at which organs become capable of reproduction;
 see "gestation period" for the ages of farm animals

pubic symphysis - where the two pelvic bones fuse and where
 they are separated during splitting of the carcass

pubis - flat bone forming the floor of the pelvic bone

puering - using dog manure to bate (remove lime and soften) hides

puffed wheat - product made by heating wheat in a closed con-
 tainer to a temperature of 288°C; the cylinder is suddenly
 opened and the water changes to steam inside the grain
 causing it to increase in size

puffy - a soft swelling on legs

pullet - a young female chicken before it reaches the age of egg
 laying

pulley size - formula for calculating the size of pulley

pulley size (driven machine) =

$$\frac{[D(\text{of driver pulley})] [RPM \text{ of driver}]}{\text{Recommended RPM of Driven}}$$

$$\text{pulley size (driver)} = \frac{[D(\text{of driven pulley})] [\text{Recommended RPM of Driven}]}{\text{RPM of Driver}}$$

$$\text{speed of driven} = \frac{[D(\text{of driver pulley})] [RPM \text{ of Driver}]}{D(\text{of driven pulley})}$$

pulling leather - holding on to the saddle when riding a bucking horse; prohibited in rodeo rules

pulmonary artery - transfers blood from the heart to the lungs

pulmonary vein - transfers blood from the lungs to the heart

pulp fed - live stock fed sugar beet pulp

pulsating d-c - direct current that varies in magnitude

pumice - a volcanic rock, used as an abrasive

pumpernickel - bread made from rye

pumping - the introduction of a pickle into meat by injection through a needle under pressure

pumpkin - a vegetable whose fruit is used as food

pure-bred - animals that are eligible for registration in any breed

Purebred Dairy Cattle Association - made up of representatives of the organizations that sponsor the Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey cattle

purée - cooked and sieved

pure maple sugar - see "maple sugar"

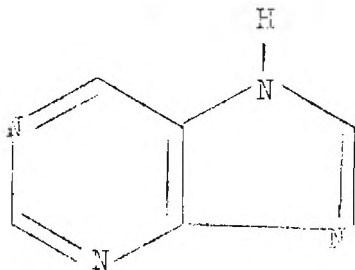
pure maple syrup - see "maple syrup"

Purif. - see "purified"

purified - purified; grade; (Purif.); a designation of a grade of chemical purity; a low purity and should not be used for analysis; Chemical grades according to decreasing purity:

1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

purine - containing the structure



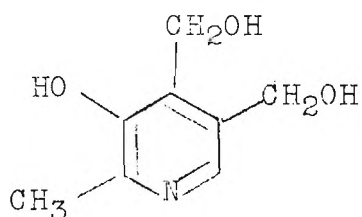
Ex.: adonine,
guanine

purse - see "cod"

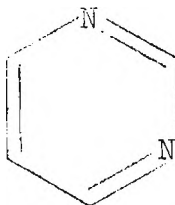
pyrex glass - see "hard glass"

pyridoxine (vitamin B₆) C₈H₁₁NO₃; a water soluble vitamin

which if deficient in the diet of the rat will result in dermatitis; source - yeast, cereal bran, kidney, liver, meats, milk, leafy vegetables, and egg yolk



pyrimidine - contains the structure:

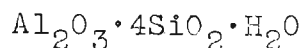


Ex., uracil, thymine

pyro- - heat

pyrophosphate - a cleaning compound that is very stable at high temp. and high alkalinity; slow to dissolve and lacks calcium sequestering power; see "phosphate"

pyrophyllite - a carrier for insecticides



α pyrrolidine-carboxylic acid - see "proline"

pyruvic acid - CH₃CO·COOH; intermediate acid formed during metabolism of carbohydrates

quadratic equation - $a x^2 + b x + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

quadriceps - 4 muscles on the anterior section of the thigh, attached to the top of the femur and to the patella and to the tibia

- Made up of:
1. Vastus lateralis (most lateral)
 2. Vastus medialis (most medial)
 3. Vastus intermedius (between 1 & 2 & cranial to the femur)
 4. Rectus femoris (most cranial of the group)

quarantine - segregate

quart (Br. fl)(Imp) - a measure of volume

- 1 qt. (Br. fl) = 1136.49 ml
- = 2 pints (Br. fl)
- = 40 fl ounces (Br. fl)
- = 1.136 liter

quart - dry (Imp) (British) - a measure of volume

- 1 dry qt. = 40 ounces
- = 1.136 liter

quart (U.S.) dry (d.qt.) - a measure of volume

- 1 d. qt. = 1.10123 cubic decimeters (dm³)
- = 67.2006 cubic inches (cu. in.)
- = 0.03889 cubic feet (cu.ft.)
- = 0.001440 cubic yards (cu.yd.)
- = 1.16365 U.S. liquid quarts (l.qt.)
- = 0.29091 U.S. liquid gallons (l. gal.)
- = 0.25 U.S. dry gallons (d. gal.)
- = 0.03125 U.S. bushels (bu.)
- = 2 dry pints (pt.)
- = 1.101 liters

quart - (U.S.) liquid (l. qt.)(U.S. fluid) - a measure of volume

- 1-l.qt. = 0.94636 cubic decimeters (dm³)
- = 57.749 cubic inches (cu.in.)
- = 0.03342 cubic feet (cu.ft.)
- = 0.001238 cubic yards (cu.yd.)
- = 0.85937 U.S. dry quarts (d. qt.)
- = 0.25 U.S. liquid gallons (l. gal.)
- = 0.21484 U.S. dry gallons (d. gal.)
- = 0.02686 U.S. bushels (bu.)
- = 0.94636 liter
- = 256.00 drams (fluid)
- = 946.333 milliliters
- = 2 liquid pints
- = 32 fluid ounces

quartern - see "noggin"

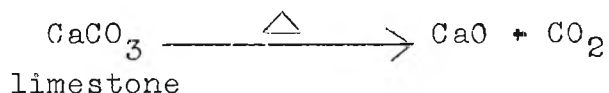
quarters - inside of thighs of a horse or rear $\frac{1}{4}$ of hoof on each side of the foot

quenelles - dumpling made of chopped seasoned meat

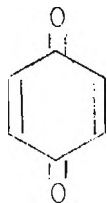
quercitron - a yellow coloring substance derived from the bark of the black oak and used to color food

quick cure - a meat curing pickle containing some nitrite

quick lime - calcium oxide CaO - made by burning limestone
(see slaking)



quinone (p) -



quintal (metric) - a measure of mass

- 1 = 100 kilograms
- = 220.46 pounds
- = 101.28 pounds (Argentina)
- = 129.54 pounds (Brazil)
- = 101.41 pounds (Chile)
- = 101.47 pounds (Mexico)
- = 101.43 pounds (Peru)

R - organic radical; see "alkyl group"; "Rankine"; "ohm"; and, "resistance"

R_x - take or recipe

Ra - see "radium"

rabbit - a small rodent

racemic (dl-) - a mixture of two optical active isomers that has no optical activity

rad - unit of ionizing radiation; it is a dosage of 100 ergs of energy absorption per gram

radian - an arc whose length is equal to the radius;
1 radian = 57.296°

radian per second - a measure of velocities and accelerations
1 = 57.2958 degrees per sec.
= 0.159155 revolutions per sec.

radiation - coming from a common source

radical - a group of connected atoms that maintain this connection through chemical changes

radish (Raphanus sativus) - a vegetable whose root is used for food

radium (Ra) - an element; at. no. 88; mass number of most stable isotope 226; isotopes 223, 224, 226, 228;
electron configuration 2-8-18-32-18-8-2
orbit K L M N O P Q

oxidation state +2

radius - one of the fore shank bones; from center of circle to the surface

radon (Rn) - an element; at. no 86; mass number of most stable isotope 222; electron configuration 2-8-18-32-18-8
orbit K L M N O P

oxidation state 0

raffinose (melitose, melitriose) - a trisaccharide made up of fructose, glucose and galactose; found in cottonseed, beets and cereals; $C_{18}H_{32}O_{16}$

ragout - a thick savory stew of meat, vegetables and spices

rails (meat) - minimum of two feet from fixed portion of building (3 feet for heavier traffic); height - sausage cages 7-1/2 feet; headless hog and calves 9 feet (12-inch trolleys); beef quarters 7-1/2 feet

raisin - a dried grape

raisin bread - minimum of 50 parts by weight of raisins/100 parts of flour

ram - an uncastrated male ovine animal (sheep), any age

Rambouillet - a fine wool breed of sheep developed in France and Germany but originating from the Spanish Merinos; they have white lips and hooves and the rams have horns (also a polled strain); ewes are without horns

rancid - having a foul odor or taste similar to that of an old oil

randomisation - interesterification of fat

randomized group comparisons - two groups of equal size (approximately equal variance)

$$\text{pooled } \sum x^2 = \sum x^2 \text{ (1st group)} + \sum x^2 \text{ (2nd group)}$$

$$H_0: \mu_1 - \mu_2 = 0 \text{ or } \mu_1 = \mu_2$$

$$t = (\bar{x}_1 - \bar{x}_2) \sqrt{\frac{n(n-1)}{\text{pooled } \sum x^2}}$$

n = # in a group

\bar{x}_1 = mean of group 1

μ_1 = mean of population 1

$$df = 2(n-1)$$

confidence limits on the difference

$$\bar{x}_1 - \bar{x}_2 - t_{.05} (s_{\bar{x}_1 - \bar{x}_2}) \leq \mu_1 - \mu_2 \leq \bar{x}_1 - \bar{x}_2 + t_{.05} (s_{\bar{x}_1 - \bar{x}_2})$$

$$(s_{\bar{x}_1 - \bar{x}_2}) = \sqrt{\frac{\text{pooled } \sum x^2}{(n-1)n}} \quad s^2 = \text{see "mean square"}$$

unequal numbers per group

$$t = (\bar{x}_1 - \bar{x}_2) \sqrt{\frac{n_1 n_2 (n_1 + n_2 - 2)}{(n_1 + n_2) \text{ pooled } \sum x^2}}$$

$$s_{\bar{x}_1 - \bar{x}_2} = \frac{\text{pooled } \sum x^2 (n_1 + n_2)}{n_1 n_2 (n_1 + n_2 - 2)}$$

$$df = n_1 + n_2 - 2$$

n_1 = # in group 1

\bar{x}_1 = mean in group 1

range - difference between upper and lower limits of a variable

rangy - body too long

Rankine (R) - see "absolute temperature"; Rankine = $F + 459.69$

rape (Brassica napus) - an annual grass of the mustard family
used for hog pasture; seeding - 3 to 8 lbs./acre;
pH 5.5 - 6.0; the pomace of grapes

rape oil - (colza oil); obtained from rape seed;

0.913 - 0.917	specific gravity
1.474 - 1.476	refractive index (15.5°C)
170 - 179	saponification #
97 - 105	iodine #
-2° to -10°C	solidifies

rare - internal beef temperature 140°F

rare earth element - elements with atomic numbers from 58 through
71

raspberry (Rubus idaeus or R. stigosus) - aggregate fruit used
for food

rat (Mus) - rodent

rat acrodynia - see "pyridoxine"

ratio - the quotient of a value divided by another of the same
type

ration - a fixed amount of food and water

rattle - part of forequarter of cattle consisting of the arm,
shank, brisket and short plate; in veal and lamb it con-
sists of shoulder, breast and shank

ravioli - a mixture of meat and cheese cooked inside noodle pasta

raw - in the natural or unchanged state

rawboned - underfinished

rawhide - untanned skin

rayon - fiber made from acetates of cellulose

razor back - thin, narrow back hogs

Rb - see "rubidium"

R.B.C. - red blood cells

Re - see "rhenium"

reactant - original chemicals in a chemical reaction

reactor - cattle reacting to tuberculin test

ready to eat hams - hams that have reached an internal tempera-
ture of 148°F and held to at least this temperature for
2 hours; see "smoked temperature"

ready to serve - see "smoked temperature"; "cooked"

ready to slice ham - a ham that has been tenderized but must be
cooked further before eating; internal temperature has
reached approximately 142°F

red polled - an English dual purpose type of cattle that are hornless

redtop (herds grass) - (Agrostis stolonifera); a perennial grass; weight 14 lbs. uncleaned/bu.
30-38 lbs. cleaned/bu.

seeding 5 lbs./acre; pH 5 - 5.5

reducing agent - a substance which loses electrons and is oxidized

reducing sugars - sugars which are easily oxidized by weak oxidizing agents (silver, mercuric, or cupric salts). They will reduce Fehling solution and form cuprous oxide; these sugars contain a free aldehyde or ketone group (includes mono- and some di- saccharide); Examples: glucose, fructose, maltose and lactose.

reduction - a gain of electrons; the loss of a positive charge or the gain of a negative charge; loss of oxygen or gain of hydrogen

refine - purify

refined lard - lard that has been bleached using fuller's earth

refiner's syrup - syrup obtained as a by-product of refining brown sugar

refining - process to remove fatty acid and impurities from fat; processes used:

1. caustic soda
2. steaming
3. water-washed
4. liquid - liquid extraction

refinite - trade name of silicates used to soften water; see "hardness of water"

reflux - flowing back

refractive index - number that indicates how much the direction of light is deflected when it passes through a substance; n_D^{20} is n at 20°C using a sodium light

refrigerant - a chemical used in artificial refrigeration; Examples: ammonia (NH_3), carbon dioxide (CO_2), sulfur dioxide (SO_2), ethane (C_2H_6), propane (C_3H_8), butane (C_4H_{10}), isobutane ($(\text{CH}_3)_3\text{CH}$), methyl chloride (CH_3Cl), ethyl chloride ($\text{C}_2\text{H}_5\text{Cl}$), and freons

reginette - see "noodles"

regression coefficient (sample)(b) - unit change in the dependent variable (Y) per each unit of the independent variable (X)

$$b = \frac{\sum xy}{\sum x^2} = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sum X^2 - \frac{(\sum X)^2}{n}}$$

x = deviation from mean of X's

y = deviation from mean of Y's

n = # of X or Y values

+b upward slope,

-b downward slope

see "regression equation"
for significant test

regression equation (linear)

$$\hat{Y} = \bar{y} + b(X - \bar{x})$$

\bar{y} = mean of Y's

$$\hat{Y} = a + bX$$

\bar{x} = mean of X's

b = see "regression coefficient"

$$a = \bar{y} - b\bar{x}$$

n = # of X's or Y's

Sum of Squares of deviation

$$\sum d_{y \cdot x^2} = \sum Y^2 - \frac{(\sum Y)^2}{n} - \frac{\left[\sum XY - \frac{(\sum X)(\sum Y)}{n} \right]^2}{\sum X^2 - \frac{(\sum X)^2}{n}}$$

Mean Square deviation from regression

$$s_{y \cdot x^2} = \sum d_{y \cdot x^2} / n - 2$$

sample standard deviation from regression

$$s_{y \cdot x} = \sqrt{s_{y \cdot x^2}}$$

sample standard deviation of regression coefficient

$$s_b = s_{y \cdot x} / \sqrt{\sum x^2 - (\sum X)^2 / n}$$

test of significance of b

$$t = b / s_b$$

$$df = n - 2$$

or test $H_0: B = 0$

$$t = \frac{b - \beta}{s_b}$$

CL on b

$$b - t_{.05} s_b \leq \beta \leq b + t_{.05} s_b$$

$$df = n - 2$$

CL for regression line

(A) CL for an average on Y's for each X

$$\hat{Y} - t_{.05} s_{\hat{y}} \leq \mu \leq \hat{Y} + t_{.05} s_{\hat{y}}$$

x = X - \bar{x} (calculated for each value of X)

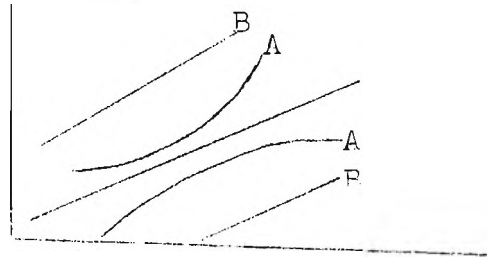
$$s_{\hat{y}} = s_{y \cdot x} \sqrt{1/n + x^2 / \sum x^2}$$

$$\sum x^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

(B) CL for individual Y's for each X

$$\hat{Y} - t_{.05} s_y \leq \mu \leq \hat{Y} + t_{.05} s_y$$

$$s_y = s_{y \cdot x} \sqrt{1 + (1/n) + x^2 / \sum x^2}$$



regression (multiple) -

$$\sum x_1^2 = \sum X_1^2 - \frac{(\sum X_1)^2}{n}$$

$$\sum x_2^2 = \sum X_2^2 - \frac{(\sum X_2)^2}{n}$$

$$\sum x_1 x_2 = \sum X_1 X_2 - \frac{(\sum X_1)(\sum X_2)}{n}$$

$$\sum x_2 y = \sum X_2 Y - \frac{(\sum X_2)(\sum Y)}{n}$$

$$\sum x_1 y = \sum X_1 Y - \frac{(\sum X_1)(\sum Y)}{n}$$

$$\sum y^2 = \sum Y^2 - \frac{(\sum Y)^2}{n}$$

$$D = (\sum x_1^2) (\sum x_2^2) - (\sum x_1 x_2)^2$$

$$b_{y1.2} = \frac{(\sum x_2^2) (\sum x_1 y) - (\sum x_1 x_2) (\sum x_2 y)}{D}$$

$$b_{y2.1} = \frac{(\sum x_1^2) (\sum x_2 y) - (\sum x_1 x_2) (\sum x_1 y)}{D}$$

$$a = \bar{y} - (b_{1.2}) (\bar{x}_1) - (b_{2.1}) (\bar{x}_2)$$

$$\hat{Y} = a + b_{1.2} X_1 + b_{2.1} X_2$$

regular pork trimmings - 50% fat

regular roll (rib eye) - Longissimus dorsi and Multifidus dorsi
in the rib area

relative humidity - ratio of water vapor present to the quantity
that would be present if the atmosphere was saturated at
the same temperature

relative standard deviation - see "coefficient of variation"

renal - kidney

rendering - freeing fat from cells

rendering plant - plant that renders animals which are unfit
for human food

rennet - concentrated extract of rennin

rennin (chymosin) - an enzyme produced by gastric glands and
found in the gastric juices of young mammals and which acts
upon milk causing it to coagulate; it is extracted from
the 4th stomach of suckling calves and is used to coagulate
milk in making cheese, rennet casein, junket and rennet
custards

rep - unit of dosage equivalent to 93 ergs of energy absorption
per gram of material of unit density; a silk or wool fabric
having a ribbed surface

reprocessed wool - wool that has been made into fabric but
never used

residue - remaining

resistance (R) - opposition to current flow and is measured
in ohms (Ω) power given off by resistance

$$P = I^2 R = E I = \frac{E^2}{R}$$

P = power = watts = joules/sec.

I = current in amps

R = resistance in ohms

E = potential in volts

resistant - oppose, withstand

resistors - electrical components used to supply resistance

Color code for ohm of resistance:

1st band closest to end of resistor is 1st figure

2nd band is 2nd figure

3rd band is # of zeros

Color

Black - 0 Green - 5

Brown - 1 Blue - 6

Red - 2 Violet - 7

Orange - 3 Gray - 8

Yellow - 4 White - 9

gold in third band -

value between 1 and 10

4th band - Tolerance - 4th band is variance \pm % of
normal value; silver, 10%; gold, 5%

Wattage should not be exceeded on resistors

restaurant - public eating facility

retail - selling in small quantities

retention time (t_r)(gas chromatography) - time from injection to peak maximum

retention volume (gas chromatography)(V_R) - gas volume required to elute

$$V_R = (t_r)(F_c)$$

t_r = retention time

F_c = flow of carrier gas

reticulin - connective tissue of meat closely related to collagen but highly branched

reticulum - the 2nd stomach of a ruminant animal located on its left side and often called the "honeycomb"; acts as a screening device letting only small particles into the omasum; a bovine reticulum may contain from 1 to 3 gallons; network of protoplasm in most cells

retinal - see "vitamin A aldehyde"

retinene - see "vitamin A aldehyde"

retinoic - see "vitamin A acid"

retinol - see "vitamin A"

retort - vessel used for distillation or decomposition or cooking by heat; autoclave

retort water treatment agents - to prevent staining of cans

disodium phosphate Na_2HPO_4

dioctyl sodium sulfosuccinate $\text{C}_{20}\text{H}_{37}\text{NaO}_7\text{S}$

sodium bicarbonate NaHCO_3

sodium carbonate Na_2CO_3

calcium chloride CaCl_2

sodium dodecylbenzenesulfonate $\text{C}_{18}\text{H}_{29}\text{NaO}_3\text{S}$

sodium hexametaphosphate (Graham's salt) - $(\text{NaPO}_3)_6$

sodium lauryl sulfate $\text{C}_{12}\text{H}_{25}\text{NaO}_4\text{S}$

sodium metasilicate Na_2SiO_3

sodium tripolyphosphate $\text{Na}_5\text{P}_3\text{O}_{10}$

zinc oxide ZnO

zinc sulfate ZnSO_4

propylene glycol $\text{C}_3\text{H}_8\text{O}_2$

reused wool - wool that has been made into fabric, used by the consumer and then reworked

reversion - an undesirable change in flavor

Rh - see "rhodium"

rhamnose - methyl pentose sugar, 1/3 as sweet as sucrose

rhodium (Re) - an element; at. no. 75; at. wt. 186.22;

electron configuration 2-8-18-32-13-2;
orbit K L M N O P

oxidation state +4, +6, +7

rheostat - variable resistor

Rhine wine - a dry white table wine

rhizome - underground stem

Rho (P,p) - greek letter with an English equivalent of p

Rhode Island Red - an American class of chicken that lays a brown shell egg;

<u>Varieties</u>	<u>Plumage Color</u>	<u>Shank</u>	<u>Beak</u>
*single comb	red, some black in tail feathers	dark yellow	reddish

*rose-comb	"	"	"
------------	---	---	---

*also a bantam variety

Rhode Island White - an American class of chicken that lays a brown shell egg;

<u>Variety</u>	<u>Plumage</u>	<u>Shank</u>	<u>Beak</u>
rose comb	white	yellow	yellow

rhodium (Rh) - an element; at no. 45; at. wt. 102.91;

electron configuration 2-8-18-16-1; oxidation state +3
orbit K L M N O

rhomboid muscle - attached to the medial surface of the scapula and to the thoracic spinous processes

rhubarb (Rheum) - a rhizome used as food; 66% edible

rib - an area of the fore quarter of beef usually consisting of the thick portion of the 6 through 12th rib; about 9% of a Choice carcass

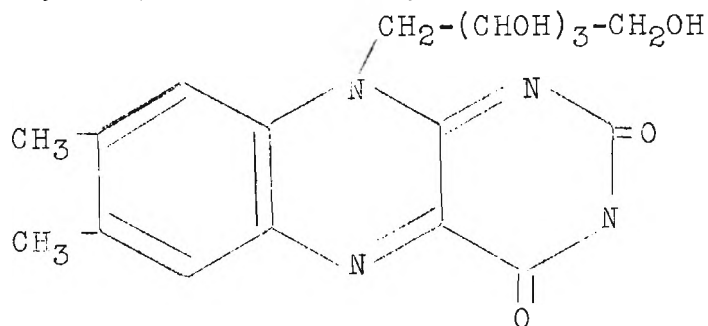
ribs - cattle, goats, sheep, deer; normally 13 ribs (8-sternal, 5-asternal), sometimes 14 ribs (14th usually floating);

Camel: 12 ribs (8-sternal, 4-asternal)

Swine: 14-16 ribs (7-sternal, 7-asternal, and the rest floating)

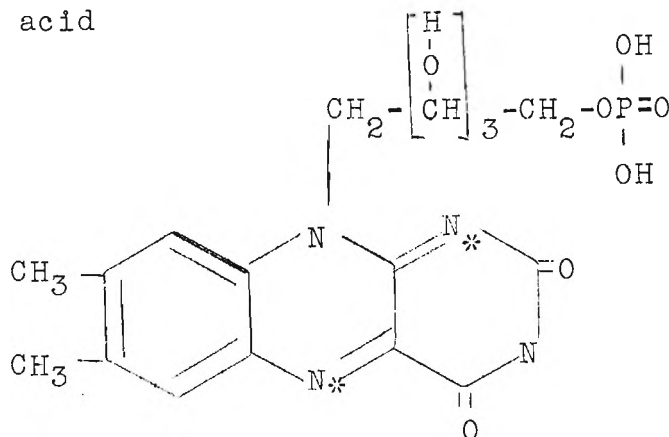
Horses: 18 ribs (10-sternal, 8-asternal)

riboflavin (B_2) - $C_{17}H_{20}N_4O_6$; a water soluble vitamin which functions in the oxidative processes which take place in the cell; it is also the growth promoting factor of the B complex; source - green leafy vegetables, Brewer's yeast, liver, kidney, muscle, milk, eggs, meat and legumes



Deficiency - redness and scaling of skin in face area, loss of hair, stunted growth

riboflavin phosphate - a mononucleotide containing riboflavin and phosphoric acid



*take on H here.

ribose - $\text{CH}_2\text{OH}(\text{CHOH})_3\text{CHO}$; a 5 carbon monosaccharide (pentose) found in nucleic acids

ribosomes - particles in the cells composed of ribonucleic acid and the area of protein synthesis

rib rack - a wholesale cut of lamb consisting of the 5th through 12th ribs

rib roll - a boned and tied rolled rib

rice (Oryza sativa) - an annual cereal whose seed is used for food

<u>Rice Name</u>	<u>Process</u>
paddy	thrashed - contains 40% fibrous husk
brown	removal of husk
white or polished	removal of bran layers

rice, wild (*Zizonia aquatica*) - long thin grain

rice grade - milled white rice - U.S. Grades 1,2,3,4,5, & 6;

brown rice - U.S. Grade 1,2,3,4, & 5

ricing - cutting into small portions

rickets (rachitis) - a bone condition in growing animals caused by a shortage of phosphorus and/or calcium and/or vitamin D; see "osteomalacia"

ricotta - a soft cheese similar to cottage cheese

ridge bone - raised area of scapula (bladebone in shoulder)

ridgling - a male with one or more testicles in body cavity or with only one testis

rigatoni - see "macaroni"

rigor (rigour) - stiff or rigid

rigor mortis - stiffening of muscle after death

rigs - cryptorchids

riksost (farmer's cheese) - a Swedish hard cheese

rillette - a fried pork preparation

rinding - removing the skin

rine - skin on fat tissue; any outer layer

ring bologna - a sausage product made from beef and pork; it is placed in a casing and the ends tied together

ringbone - an unsoundness in horses

Ringer's solution - In 100 cc:

820-900 mg. NaCl

25-35 mg. Potassium chloride

30-36 mg. Calcium chloride

In boiled purified water

ringworm - a fungus infecting the skin of domestic animals and man

ripe - mature; ready for use

ripening - see "ethylene gas"

rms - root-mean-square; a value used to measure the amount of a-c current that will produce the same amount of heating in a resistance as will an identical d-c current

Rn - see "radon"

roadster - horse usually of the standardbred breed shown only at the trot or walk; the trot has 3 speeds: jog, road gait, and trot at speed; either pulls a bike or buggy

roan - red and white

roanoke - a variety of soybean

roaring - noisy breathing in horses

roast - cook by dry heat, baking of meat

roasters - young chickens weighing above 4- $\frac{1}{4}$ lbs.

roasting - a dry heat method of cooking where the product is left uncovered and cooked in an oven

rock candy - large crystals of sugar made by slow evaporation
rock phosphate - mined phosphate rock containing from 20 to 34%
 P_2O_5 ; may contain toxic amounts of fluorine (ave. 3.5%)

rock salmon - skinned dogfish

rock salt - large crystals of sodium chloride

rod (rd.) or pole (p) or perch (p) - a unit of measurement of
length

1 rd. = 198 inches (in.)
= 25 links (Gunther's)
= 16.5 feet (ft.)
= 5.5 yards (yd.)
= 5.02921 meters (m)
= 0.005029 kilometer (km)
= 0.003125 statute mile
= 0.002714 U.S. nautical mile
4 rds. = chain (Gunther's)
40 rds. = furlong

rodent - (Rodentia); growing mammals

roe - solid mass of fish eggs

roentgen equivalent physical - see "rep"

roll (wallpaper) - covers 35 sq. feet (No matching)
- covers 30 sq. feet (Matching)

rolled oats - made by steaming the oat kernel; crushing on
rollers, and then drying

rolling - excessive side shoulder motion in horses

romaine - see "cos"

Roman nose - a convex profile

romano - a very-hard grating cheese

Rome Beauty - a variety of apples that is in season from
December to April; is an excellent to good cooking apple,
and a fair eating apple

Romeldale - a breed of sheep originating in the western United
States by crossing a Rambouillet ewe with a Romney ram

Romney - a long-wool breed of sheep originating in Southern
England

rooster - mature male chicken one year or older and has developed
mature spurs and comb growth

root beer - beverage flavored with oil of sassafras and winter-
green

root mean square - see "rms"

root-mean-square-error - see "mean-square"

Roquefort - a blue veined semi-hard cheese made in France from
sheep milk and is flavored by a blue mold (Penicillium
roquefortii)

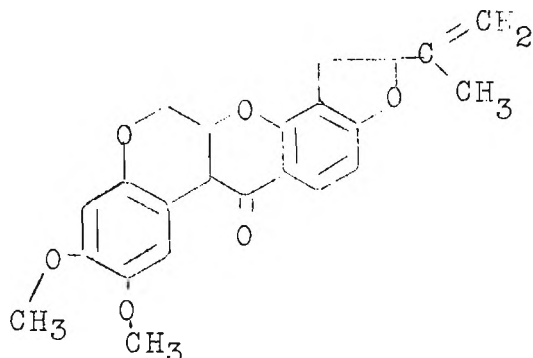
Rosemary (*Rosa Maria*) (*Rosmarinus officinalis* L.) - fresh or dried

leaf of an evergreen shrub of the mint family; leaf looks like an inch pine needle

rose wine - an all-occasion pink wine made from French-American hybrid grapes

rosin - see "gum rosin", and "wood rosin"

rotenone - a poison insecticide



roughage - indigestible (non-ruminant) material in the diet

round - the area of a hind quarter of beef located to the rear of the rump and loin area; its major muscles consist of the tip, top, eye and bottom; about 20% of a choice carcass is round; if rump is included this would add about 5%

round bone sirloin - a sirloin steak found in the loin end wholesale cut; it is located between the wedge bone sirloin and the double bone sirloin

rounding - anything above 50,000 etc. round up and below round down; at 5,000 etc. round to the nearest even number;

Example:

	<u>Rounded</u>
9.50	- 10.00
10.50	- 10.00
11.50	- 12.00
12.49	- 12.00
12.50	- 12.00
12.51	- 13.00

rounds - beef and pork small intestine used as natural casings in the meat trade

round tip - see "sirloin tip"

round worms - see "Ascaris suis"

rowan - a variety of lespedeza

RSP - red, sour, pitted cherries

Ru - see "ruthenium"

rubber hydrochloride - stretchable film

rubber stopper - size no.

<u>Size No.</u>	<u>Approx. Diameter in mm of Large End of Stopper</u>	<u>Size No.</u>	<u>Approx. Diameter in mm of Large End of Stopper</u>
00	15 mm	7	37 mm
0	17	8	41
1	19	9	45
2	20	10	50
3	23	11	51
4	26	12	64
5	27	13	69
5- $\frac{1}{2}$	28	13- $\frac{1}{2}$	75
6	32	14	90
6- $\frac{1}{2}$	34	15	103

rubidium (Rb) - an element; at. no. 37; at. wt. 85.48;

electron configuration 2-8-18-8-1; oxidation state +1
orbit K L M N O

rudy glass - is an example of a colloidal system in which a solid is dispersed in a solid

rum - an alcoholic beverage made from fermented molasses

rumen (paunch) - the first and largest stomach of the ruminant animal and is located on its left side; this compartment breaks feed down into smaller particles and is where micro-organisms digest most of the cellulose; a bovine rumen may contain from 20 to 50 gallons

ruminant - a cud-chewing four stomach animal which can utilize roughage as a source of food; Example: cattle, sheep, goats, buffalo, camel, deer, and antelope

rumination - a process which takes place in ruminant animals in which the food in the rumen and reticulum is re-gurgitated, re-chewed and again swallowed

rump - on live animal, the part between the hips and the tail head

rump knuckle bone - superior extremity of femur

rump roast - an unboned rump contains the pelvic bone, the sacrum and rump knuckle bone; however, it is usually re-tailed as a boneless, rolled and tied roast

run - supply coming to market

runt - small

rural New Yorker - a variety of potato

russett Burbank - a variety of potatoes which are used for baking and frying

rutabaga - (Swede)(Brassica napobrassica); a vegetable whose root is used as food

ruthenium (Ru) - an element; at. no. 44; at. wt. 101.1;
electron configuration 2-8-18-15-1; oxidation state +3
orbit K L M N O

rye (Secale cereale) - an annual grass used for grazing

whole rye 1.7 lbs/qt.

ground rye 1.5 lbs/qt.

pH 5 - 5.5

Variety: abruzzi

approximate nutrient used for growth
of 20 bu. grain 1 ton straw

21 10 lbs. N

8 6 lbs. P₂O₅

6 16 lbs. K₂O

ryegrass - an annual and perennial grass;

seeding - 40 lbs/acre; 24 lbs/bu.

Variety: Italian; when eaten by cattle, it will sometimes give an off-flavor to milk

rye whiskey - whiskey made from a mixture of rye or barley malt and unmalted rye

S - see "sulfur"

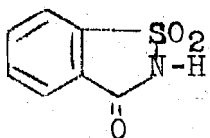
sabayon - a dessert made of egg yolk, vanilla, sugar, white and sherry wine

saccharase - enzymes that use sugars as a substrate

saccharide - one of a series of carbohydrates

saccharimeter (saccharometer, sometimes reserved for density measurements) - instrument for determining the concentration of sugar by measuring the angle of rotation of polarized light.

saccharin - a non-nutritive sweetener 500 times as sweet as cane sugar (sucrose); m.p. 227°C



saccharometer - see "saccharimeter"

saccharose - see "sucrose"

sack - strong, dry, light-colored wine

sacral vertebrae - backbone behind the slip joint and before the tail bone (loin end area). Beef - 5, lamb - 4, pork - 4, chicken - fused, rabbit - 3 - 4

sacrum - see "sacral vertebrae"

saffian - leather made from goat or sheep skin

safflower - seed oil; a light yellow oil sometimes used for coloring food

saffron (Crocus sativus L.) - Dried orange-yellow stigma of saffron flower used as seasoning; a vegetable yellow-red color from the saffron plant used to color food

sagamite - mush made from hominy

sage - (Salvia officinalis L.) - fresh or dried leaf of a shrubby plant used as an herb; available in whole, rubbed (fluffy) and ground form.

Dried

Not less than 1% volatile ether extract

Not more than 25% crude fiber

Not more than 10% total ash

Not more than 1% acid insoluble ash

Not more than 12% stems (excluding petioles) or foreign matter

sago - refined starch from the pith of the sago palm

saigon cinnamon - see "cassia"

saim - fat or lard

Saint-John's bread - carob bean

sake (saki) - beer made from rice; 13-14% alcohol

saki - see "sake"

sal - salt

salad - uncooked vegetables and sometimes meat which are seasoned

salad berry - berry of Gaultheria Shallon

salad cream - a dressing made from olive oil and eggs

salad dressing - see "cooked salad dressing", "french dressing" and "mayonnaise"

salad oil - a refined, bleached, deodorized, and winterized (if needed) edible oil; olive oil

salamagundi - mixture of meat, egg, pickled vegetables and salad

salami (cooked) - a coarse ground cooked Italian sausage of many varieties. Normal - 60% beef and 40% pork

50-80% Beef	0-24% Ice
20-60% Pork	8 oz. Sugar */100 lbs.
0-20% Hearts	1 oz. Cardamom */100 lbs.
0-25% Pork Cheek	2-6 oz. Cracked black pepper */100 lbs.
Meat	1 oz. Garlic powder */100 lbs.
0-35% Beef Fat	2 oz. NaNO ₃ */100 lbs.
Plate	$\frac{1}{4}$ oz. NaNO ₂ */100 lbs.
	0-3 oz. Coriander/100 lbs.
	0-1 oz. Mace/100 lbs.
	0-1 oz. Paprika/100 lbs.

* combination used in some formulations

Processing

1. Grind with 1/8-inch plate
2. Mix, add cure and spices
3. Stuff
4. Hang until dry
5. Smoke 80-90°F for 14 hours
150-160°F until internal temperature is 142°F
6. Rinse with hot water
7. Shower for 10 minutes
8. Room temperature for 2 hours
9. Cooler

salami cotto (cooked salami) - a coarsely chopped predominantly pork with some beef mixture. It is held 3 days prior to cooking to allow curing. The internal temperature is raised to above 137°F

salami (dry) - a dry sausage made from predominantly pork with some beef. It is allowed to cure 2 days before stuffing. It is then dried without smoking.

Types: B.C. salami (German type) - beef middle,
11-15 inches long - smoked

Genoa - sewed hog bungs - 16 - 20 inches long
Milano - hog bungs - 18 - 30 inches long

- salep (salop) - dried tubers of Orchis mascula used to make a drink or jelly
- saleratus - baking soda; Na or K bicarbonate
- salicylage - preserving food with salicylic acid
- saligot - water chestnut
- salimeter - a floating (specific gravity) instrument used to test the strength or salinity (salt) of a pickle or brine. Pure water = 0°, saturated salt solution at 38°F = 100°
- saline - see "physiological saline" and "salty"
- salinometer - see "salimeter"
- salisbury steak - ground meat mixed with bread and seasoning and fried
- saliva - fluid secreted in the mouth which provides lubrication for swallowing; contains ptyalin, potassium thiocyanate and albumin.
- salmagundi - to pickle; food mixture
- salmi - birds and game stewed in wine
- salmon (Atlantic salmon) - true salmon; percent fat varies from 0 to 14% depending on when caught; see "fresh water fish".
- salmon fry - a smolt
- salmon (Pacific salmon) - different species than Atlantic salmon; see "fresh water fish"
- salmon trout - see "fresh water fish"
- Salmonella - genus of bacteria (over 900 species). The second most common type of food poisoning bacteria. Gram negative rods, facultative anaerobes and non-spore former. Salmonella death rate for infected people is low. Optimum temp. for growth 98-100°F. Bacteria will be killed by heating to 150 - 180°F for 15 minutes.
- salometer - see "salimeter"
- salpicon - stuffing
- salsify (oyster plant) - a vegetable whose root is used as food
- salt - a number of chemical compounds in which the hydrogen of an acid is replaced by a metal and common salt is only one. Common salt - sodium chloride (NaCl); 1 barrel = 280 lbs.; 1 qt. = 2.6 lbs.; Iodized salt has 1% potassium iodine added.
- salt (organic) -
$$\begin{array}{c} \text{R}-\text{C}-\text{O}-\text{M} \\ | \\ \text{O} \end{array}$$
 (of organic acids)

I.U.C. - metallic group is followed by the acid name with the ic replaced by ate.

salt analysis - is determined by digesting the sample with nitric acid in the presence of excess silver nitrate. The silver ion precipitates the chlorides and the amount of silver nitrate used can be determined by titrating the excess with ammonium thiocyanate. The quantity of chloride can thus be calculated and the results reported as sodium chloride.

saltcake - sodium sulphate, Na₂SO₄

salt, common - sodium chloride

salt-free diet - diet that contains 150-500 mg sodium/day

saltpeter - can be any of the following: (1) Chile saltpeter - cubic nitre, sodium nitrate. (2) Ordinary saltpeter - Bengal saltpeter - nitre, potassium nitrate. (3) Wall saltpeter - Norway saltpeter - calcium nitrate. One and two are used in meat curing.

saltpeter chile - as mined 48-75% sodium nitrate NaNO₃ and 20-40% sodium chloride NaCl

saltpeter ordinary - potassium nitrate KNO₃

salty (saline) - taste sensation of sodium chloride

salvia - sage

salway - a variety of freestone peaches

samarium (Sm) - a rare earth element; at. no. 62; at. wt. 105.35; electron configuration 2-8-18-24-8-2; oxidation states +2, orbit K L M N O P +3

samneh - rendered butterfat

samp - corn ground larger than meat and smaller than hominy

samphire - leaves used to make pickles

samp hominy - is coarse hominy grits; see "hominy grits".

sample - a part taken to represent the whole

sample size - determination of appropriate size of sample;

Paired analysis:

With a given size sample the odds are 1:1 that a difference of δ could be detected at the 5% level

$$\delta = \frac{s_D t_{.05}}{\sqrt{n}}$$

- δ = difference to be detected
- s_D = sample standard deviation
- df = degrees of freedom (n - 1)
- n = sample size in each group
- t = student t at .05

To determine sample size, state difference to be detected, since t changes with n, guess at n and solve, adjust n size, resolve until desired value is obtained.

Group analysis (difference between means):

$$\delta = \frac{\sqrt{2} s t}{n} \text{ or } n = \frac{2 t^2 s^2}{\delta^2}$$

- n = sample size in each group
- s = estimate of standard deviation
- t = table value; df = 2(n - 1)
- δ = difference to be detected

sample size (cont'd)

Analysis of variance:

$$\delta = \frac{(Q_{a,f}) (s_o) F_{f,f_o}}{n}$$

s_o = estimate of standard deviation

f_o = df in s_o

a = treatments in new experiment

n = individuals per treatment

f = $a(n-1)$ of new experiment

δ = difference to be detected

$Q_{a,f}$ = table value

F_{f,f_o} = table value; $f = f_1$;

$f_o = f_2$

probability = (1 - prob. of success or probability of detecting δ if it exists)

sample standard deviation (s_D) - a measure of sample variability

In paired analysis:

$$s_D = \sqrt{\frac{\sum d^2}{n-1}}$$

$$D = X_1 - X_2$$

$$\bar{d} = \frac{\sum D}{n}$$

$$d = D - \bar{d}$$

n = number of pairs

X_x = observations

sand - granules of impure silica (SiO_2); 1 cu. ft. dry sand = 110 lbs.

Sandhill cattle - from sandhills of western Nebraska

sandwich - named for Earl of Sandwich; filling between 2 pieces of bread

sangaree - a spiced drink made of wine, sugar and water

sanitary - hygienic, pertaining to health

sanka - coffee with some of the caffeine removed

San Pierre No. 1 - a breed of hogs produced from a Berkshire and Chester White cross and is black and white in color

sansa - residue from olives after removing oil

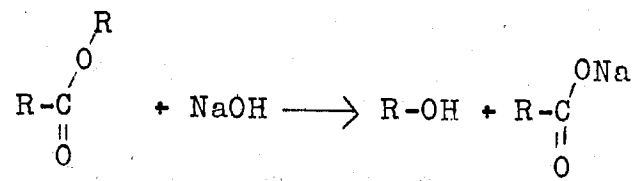
Santa Gertrudis - first breed of beef cattle originating in U.S. developed by R. J. Kleberg of King Ranch of Kingsville, Texas. They originated from Brahman bulls of the Nellore strain and Shorthorn cows and are approximately 5/8 Shorthorn and 3/8 Brahman. They have almost no hump and are deep red in color. See "Monkey".

S.A.P. - subject to approval of price

sap - natural circulating juice in a living substance

sapo - soap; sodium salt of olive oil fatty acids

saponification - a process for producing a salt of an acid and an alcohol, from an ester by treating it with a strong alkali.



saponification value (or number) analysis - is the milligrams of potassium hydroxide required to saponify 1 gram of fat. It is determined by adding an excess of potassium hydroxide to fat, saponifying the fat and then titrating the excess potassium hydroxide with a standard acid. From this value it is possible to calculate the mean molecular wt.

sapor - taste

sapro - rotten or putrid

sapsago - a very hard gray-green pungent cheese

saracen - buckwheat

Saran - trademark of Dow Chemical Co. A vinylidene chloride - vinyl chloride film relatively impermeable to air and moisture.

Saratoga chop - lamb chops made from the shoulder muscle that has been rolled and skewered

sarco - flesh

sarcocystis - parasite found in the skeletal muscle fibers of all classes of livestock and man

sarcolemma - a membranous envelope approximately 100 Å thick surrounding the muscle fiber; the cell nuclei are just inside this covering.

sarcomere - area between 2 adjacent Z lines of a muscle fiber

sarcoplasm - the cytoplasm of muscle cells which surrounds the myofibrils

sarcoplasmic reticulum - a network surrounding the myofibrils of a muscle.

sardine - immature fish from the herring family; canned in salted oil

<u>Country of origin</u>	<u>Fish used</u>
France	Young Pilchard
Norway	Sprats (bristling)
Portugal	Young Pilchard
Spain	Young Pilchard

sarrazin - buckwheat

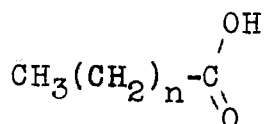
sarsaparilla - beverage flavor made from root of several species of Smilax

sassafras - bark or root of a tree of the laurel family used as flavoring in food

sation - planting or sowing

saturated - hydrocarbon in which the carbon valences are used to hold other carbon or hydrogen atoms (no double bonds); maximum amount of a substance in solution

saturated fatty acids - $C_nH_{2n+1}COOH$ Fatty acids containing carbon atoms joined together by single bonds



They have a higher melting point and are harder than unsaturated acids of the same chain length. The principal natural saturated fatty acids are:

<u>Name</u>	<u># of Carbons</u>
Butyric	4
Caproic	6
Caprylic	8
Capric	10
Lauric	12
Myristic	14
Palmitic	16
Stearic	18
Arachidic	20

saturated hydrocarbon - see "alkane"

saturated solution - a solution which has dissolved all of a given product that it is capable of dissolving under normal conditions. There is an equilibrium reached between the saturated solution and the undissolved solute which is a function of the temperature

saturnism - lead poisoning

sauce - a mixture added to food to alter its flavor

saucealone - garlic mustard

saucer - a small dish

- sauerbraten - a marinated pot roast cooked in vinegar and with vegetables
- sauerkraut - shredded cabbage mixed with salt and sometimes vinegar and packed into containers to ferment
- Saumon du Rhin - grilled or baked salmon
- sausage - meat mixed with salt and spices
- sausage bull - lean, aged male cattle
- sausage seasoning - see "pork sausage seasoning" and "pork sausage"
- sausage trimmings - approximately 12% of normal cut hog carcass
- saute - cook in small amount of fat
- Sauterne wine - a light table wine
- saveloy - a dried, highly seasoned, smoked pork sausage
- savor - taste or odor
- savory (Satureia hortensis L.) - dried brown-green leaf (3/8 inch in length) and flowering tops of a mint family plant used as an herb; sold whole or ground
- savoy - taste or odor
- Sb - see "antimony"
- Sc - see "scandium"
- scalawag - emaciated livestock
- scald - to rinse with boiling water, or heat just below boiling; defect of stored apples
- scaldberry - blackberry
- scalding - hog and chicken scalding water temperature 150° to 160°F. Packing plants with long tanks often use cooler temperatures. Also see "semi-scalding".
- scalding water additives - aid in hair removal of a hog carcass; must be rinsed off of carcass. Caustic soda, dioctyl sodium sulfosuccinate, lime, methyl polysilicone, sodium carbonate, sodium dodecylbenzene sulfonate, sodium hexametaphosphate, sodium lauryl sulfate, sodium metasilicate, sodium tri-polyphosphate, trisodium phosphate.
- scale - remove thin layers
- scalenus - muscle in the neck area between the 1st rib and the last 4 cervical vertebrae
- scallion - a member of the onion family
- scallop - a shell fish; 20% edible (av. 20% protein) or to bake with bread
- scamorze - a semi-hard cheese packaged in small rolls
- scandium (Sc) - an element; at. no. 21; at. wt. 44.96; electron configuration 2-8-9-2; oxidation state +3 orbit K L M N
- scapula - shoulder blade bone; spine is lateral, bone is attached only to humerus.
- scapular cartilage - cartilage on bladebone on the end opposite the area where this bone attaches to the humerus.

- scent - odor, smell
- schenk beer - young beer
- Schiedam - Holland gin
- schnapps - alcoholic liquor
- schou oil - emulsifying agent
- sclerotin - pectin
- scone - wheat or barley or oatmeal cake
- scoop - a utensil used to measure volume

<u>Scoop Number</u>	<u>Measure</u>
40	1-3/5 tbsp.
30	2-1/5 tsp.
24	2-2/3+ tsp.
16	1/4 cup
12	5+ tbsp.
10	6+ tbsp.
8	1/2 cup
6	10+ tbsp.

- score - cut in the outer surface of food
- Scotch cap - wild raspberry
- Scotch oatmeal - ground oatmeal
- Scotch tender (chuck tender) - supraspinatus muscle that ties lateral to the scapula and dorsal to its spine
- scour - clean by friction
- scoured wool - grease wool that has been subjected to a cleaning process before manufacturing
- scouse - vegetables and biscuit
- scrabbed eggs - hard-boiled eggs mixed with butter, salt & pepper
- scraps - food scraps
- scrapple - sausage consisting of pork and pork by-products, meal or flour of grain and seasoning. Head meat, feet, hearts, tongues, and pork trimmings are cooked in water, bones are removed and meat is ground and cereal (usually corn meal) added.
- scramble - cooking eggs by stirring
- scrod - young codfish
- scrotum - skin holding testicles
- scrow - small bits of hide used to make glue
- scrub - livestock of mixed or unknown breeding, inferior
- scruple (apothecary) (s) - a measure of weight

- 1 scruple = 20 grains
- = 1.295,978,4 grams
- = 0.833,333,3 pennyweight
- = 0.731,428,6 dram (avoir)
- = 0.333,333 dram (apoth.)

scruple (cont'd)

1 scruple = 0.045,714,3 ounces (avoir)
 = 0.041,666,7 ounces (apoth)(troy)
 = 0.003,472,222 pound (apoth.)(troy)
 = 0.002,857,143 pounds (avoir)

scuppernong - muscadine, wine grape

scudding - a process in cleaning hides prior to tanning. Hides are placed over a wooden beam and cleaned with a special knife

scurfs - in polled animals small horning "buttons" attached to the skin but not to the skull in the area where horns are normally found

scurvy - a disease caused by the deficiency of Vitamin C in the diet. Symptoms are loss of weight, fatigue, shortness of breath, gums become swollen and bleed easily, and bruise easily

scutellum - layer that separates embryo and endosperm of a seed; part of the germ

Se - see "selenium"

sea bread - hardtack

seafood - in U.S. means all products of the sea except fish; food from the sea

sear - brown quickly

sea salt - sodium chloride obtained from evaporation of sea water

sea water - water from the sea

96.4% H₂O

2.8% NaCl

0.4% MgCl₂

0.2% MgSO₄

0.1% CaSO₄

0.1% KCl

seaweed - kelp (marine algae)

sebaceous - tallow, grease

secant - is a trigonometric function; Secant = $\frac{\text{hypotenuse}}{\text{abscissa}}$

section-comb honey - see "comb honey"

seed - mature ovula; composed of an external skin (perisperm or testa) and a nucleus (kernel)

seed cake - sweet cake containing seed

seedling - young plant

scethe - to boil

selenium (Se) - an element; at. no. 34; at. wt. 78.96;

electron configuration 2-8-18-6; oxidation states +4, +6, -2
 orbit K L M N

Vegetation grown on soils that contain it may cause alkali disease in animals; some evidence seems to indicate small quantities may be essential.

self-feeder - a trough which is automatically kept full of feed so animals can eat as much and as often as they please

self-rising flour - a mixture of flour, salt and baking powder

sellers market - an upward price trend

semen - the fluid produced by males carrying the spermatozoa; the average volume of semen introduced in one service is:

Boar - 200 cc
Stallion - 100 cc
Bull - 5 cc
Ram - 1 cc

semi-boiled soap - see "cold soap"

semibright wool - wool that is soil stained but that can be scoured white. Produced primarily in Eastern part of Kansas, Neb., N. & S. Dak., Okla., Missouri, Iowa, Minn. and Wisconsin

semimembranosus - a broad medial muscle of the thigh that runs from the ischium to the back of the tibia. The most medial and caudal muscle of the round

semi-permeable membrane - a membrane which permits passage of some substances but not others

semi-scalding - using 125 to 132°F water to scald poultry followed by a mechanical picker

semisweet chocolate - sold in bar-shaped package containing 1 ounce squares; it is slightly sweet and melts easily

semisweet chocolate pieces - is unsweetened chocolate plus cocoa butter, sugar and a vanilla-type flavoring

semitendinosus (eye of round) - a round shaped muscle of the thigh that runs from the ischium to the back of the tibia. It is caudal to the biceps femoris and caudal and lateral to the semimembranosus.

semi-tendinous (semitendinosus) - composed in part of tendinous structure; see "eye of round", and "semitendinosus"

semolina - coarse flour; fine starchy endosperm of hard wheat

sense - to perceive objectively by stimulation of organs of the body

sensitive - ability to receive impressions from external forces

sensory - examination by taste and smell

sepal - part (calyx) of a flower

sepsis - poisoning caused by products of putrefactive process

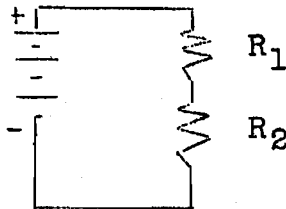
septum - a partition between two cavities

sequestrants - a food additive that will separate or segregate, usually in the inactive form, ingredients that will interfere with processing

serac - cheese

serial - arranged in a series

sericin (silk gelatin) - a protein cement used to hold the principal constituent (fibroin) together in silk fiber

series circuit

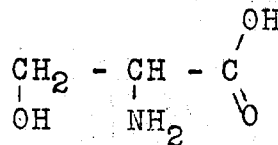
R_T = Resistance total

R_1 = Resistance in Resistor #1
Current (or amp) in each component is the same

$$R_T = R_1 + R_2 + \dots + R_n$$

The total potential = algebraic sum of the potentials

serine - a monoamino-monocarboxylic-monohydroxy amino acid;
non-essential



serratus dorsalis - a back muscle that runs from the spinous processes of the thoracic vertebrae over the longissimus dorsi to the rib. In cross-section it is most prominent on the lateral side of the longissimus dorsi.

serum - In blood - this is the part of plasma remaining after clot, blood corpuscles and fibrin have been removed (Defibrinated). Contains:

90% water
1% glucose
1% fat
.85% NaCl
.15% Na bicarbonate and salts
7% protein

Serum of milk is whey

serum test - used to indicate species of meat. Rabbits are injected with solution of X-protein. The rabbit builds up antibodies against X-protein. If a meat is suspected of containing X-protein it is mixed with serum obtained from the rabbit and if X-protein is present it will be destroyed by the serum and if it is not present, the serum will be unaffected.

Servings Per Pound (Meat)

	Serv- ings per lb.	Price Per Pound									
		29	39	49	59	69	79	89	99	109	
		Cost Per Serving									
Beef											
Sirloin Steak	2-1/2	12	16	20	24	28	32	36	40	44	
Porterhouse, T-bone, Rib Steak	2	15	20	25	30	35	40	45	50	55	
Round Steak	3-1/2	8	11	14	17	20	23	25	28	31	
Chuck Roast (bone in)	2	15	20	25	30	35	40	45	50	55	
Rib Roast (boneless)	2-1/2	12	16	20	24	28	32	36	40	44	
Rib Roast (bone in)	2	15	20	25	30	35	40	45	50	55	
Rump, Sirloin Roast	3	10	13	16	20	23	26	30	33	36	
Ground Beef	4	7	10	12	15	17	20	22	25	27	
Short Ribs	2	15	20	25	30	35	40	45	50	55	
Heart, Liver, Kidney	5	6	8	10	12	14	16	18	20	22	
Frankfurters	4	7	10	12	15	17	20	22	25	27	
Stew meat (boneless)	5	6	8	10	12	14	16	18	20	22	
Lamb											
Loin, Rib, Shoulder (chops)	3	10	13	16	20	23	26	30	33	36	
Breast, Shank	2	15	20	25	30	35	40	45	50	55	
Shoulder Roast	2-1/2	12	16	20	24	28	32	36	40	44	
Leg of Lamb	3	10	13	16	20	23	26	30	33	36	
Pork - Fresh											
Center Cut or Rib (chops)	4	7	10	12	15	17	20	22	25	27	
Loin or Rib Roast	2-1/2	12	16	20	24	28	32	36	40	44	
Boston Butt (bone in)	3	10	13	16	20	23	26	30	33	36	
Blade Steak	3	10	13	16	20	23	26	30	33	36	
Spare Ribs	1-1/3	22	29	37	44	52	59	67	74	82	
Pork - Cured											
Picnic (bone in)	2	15	20	25	30	35	40	45	50	55	
Ham - Fully Cooked											
Bone in	3-1/2	8	11	14	17	20	23	25	28	31	
Boneless & canned	5	6	8	10	12	14	16	18	20	22	
Shankless	4-1/4	7	9	12	14	16	19	21	23	26	
Center slice	5	6	8	10	12	14	16	18	20	22	
Poultry											
Broiler, or Ready- to-Cook Chicken	1-1/3	22	29	37	44	52	59	67	74	82	
Legs, thighs	3	10	13	16	20	23	26	30	33	36	
Breast	4	7	10	12	15	17	20	22	25	27	
Turkey, Ready-to- Cook											
Under 12 lbs.	1	29	39	49	59	69	79	89	99	109	
12 lbs. & over	1-1/3	22	29	37	44	52	59	67	74	82	

Servings Per Pound (Meat) (cont'd)

	Serv- ings per lb.	Price Per Pound									
		119	129	139	149	159	169	179	189	199	209
Beef											
Sirloin Steak	2-1/2	48	52	56	60	64	68	72	76	80	84
Porterhouse, T-bone, Rib Steak	2	60	65	70	75	80	85	90	95	100	105
Round Steak	3-1/2	34	37	40	43	46	49	52	54	57	60
Chuck Roast (bone in)	2	60	65	70	75	80	85	90	95	100	105
Rib Roast (boneless)	2-1/2	48	52	56	60	64	68	72	76	80	84
Rib Roast (bone in)	2	60	65	70	75	80	85	90	95	100	105
Rump, Sirloin Roast	3	40	43	46	50	53	57	60	63	67	70
Ground Beef	4	30	32	35	38	40	43	45	48	50	53
Short Ribs	2	60	65	70	75	80	85	90	95	100	105
Heart, Liver, Kidney	5	24	26	28	30	32	34	36	38	40	42
Frankfurters	4	30	32	35	38	40	43	45	48	50	53
Stew meat (boneless)	5	24	26	28	30	32	34	36	38	40	42
Lamb											
Loin, Rib, Shoulder (chops)	3	40	43	46	50	53	57	60	63	67	70
Breast, Shank	2	60	65	70	75	80	85	90	95	100	105
Shoulder Roast	2-1/2	48	52	56	60	64	68	72	76	80	84
Leg of Lamb	3	40	43	46	50	53	57	60	63	67	70
Pork - Fresh											
Center Cut or Rib (chops)	4	30	32	35	38	40	43	45	48	50	53
Loin or Rib Roast	2-1/2	48	52	56	60	64	68	72	76	80	84
Boston Butt (bone in)	3	40	43	46	50	53	57	60	63	67	70
Blade Steak	3	40	43	46	50	53	57	60	63	67	70
Spare Ribs	1-1/3	89	97	104	112	120	127	135	143	150	158
Pork - Cured											
Picnic (bone in)	2	60	65	70	75	80	85	90	95	100	105
Ham - Fully Cooked											
Bone in	3-1/2	34	37	40	43	46	49	52	54	57	60
Boneless & canned	5	24	26	28	30	32	34	36	38	40	42
Shankless	4-1/4	28	30	33	35	38	40	43	45	47	50
Center slice	5	24	26	28	30	32	34	36	38	40	42
Poultry											
Broiler, or Ready- to-Cook Chicken	1-1/3	89	97	104	112	120	127	135	143	150	159
Legs, thighs	3	40	43	46	50	54	57	60	63	67	70
Breast	4	30	32	35	38	40	43	45	48	50	53
Turkey, Ready-to- Cook											
Under 12 lbs.	1	119	129	139	149	159	169	179	189	199	209
12 lbs. & over	1-1/3	89	97	104	112	120	127	135	143	150	159

servo - from Latin meaning slave

sesame oil - obtained from the seed of the sesame plant
(Sesamum indicum)

0.921 - 0.925	Specific gravity
1.474 - 1.476	Refractive Index (15.5°C)
188 - 193	Saponification #
103 - 112	Iodine #

sesame seed (Sesamum indicum L.) - White seed (1/8 inch in length)
(Benne seed)(Bene seed) used in flavoring food and as an oil crop

set point - see "congealing point"

setting the hair - when the hog carcasses are over-scalded and the hair becomes extremely hard to remove

setting out - mechanical extraction of surplus water from leather after tanning

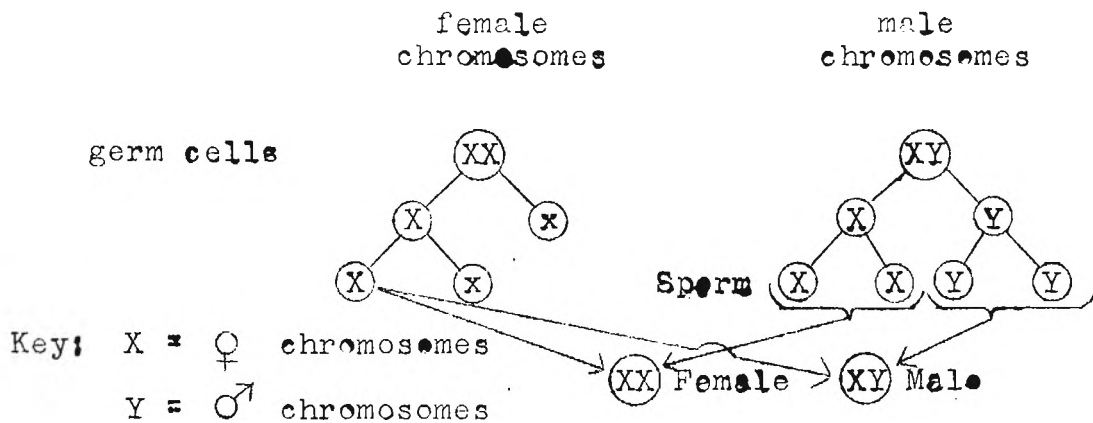
sew - to serve at the table; broth or juice

sewer - one who serves food

sex - the state of a plant (or part of a plant) or animal that is expressed in the production of ova, in the female; or sperm, in the male.

□ or ♂ symbol for male

○ or ♀ symbol for female



shack - to feed upon stubble or fallen grain after harvest

shallot - a vegetable whose bulb is used as food; it is a member of the onion family

shandygaff - a mixture of ale and beer

shank (fore) bone - is the metacarpal bone

shank knuckle bone - inferior extremity of femur

- sharp freezing - reducing a portion of food temperature to 10°F or less in 5 hours or less. Room should be -10°F or lower; Tolerance of 10°F for a reasonable length of time after entry of fresh food.
- shaslik - cubes of seasoned meat, onions, tomatoes and vegetables cooked on a skewer
- shaw - a stem and leaves
- sheal - remove pod, shell or husk
- shear - a stress applied to one of the faces of a body; clip; cut
- shearer - an ovine animal (sheep) any age to be sheared before slaughter
- sheep (ovis aries) - ovine animals of all ages and sex. In common practice one year or older in age. Mature sheep - 3 years or older; Ovis laticauda - broad tailed; Ovis montana - bighorn
- sheep casing - see "casing" (sheep)
- shehitah - Jewish method of slaughter
- shelf curing - applying dry cure to meat and placing it so the juices will drain from the product while curing
- shell - emaciated livestock; separate from cob; remove external covering
- shellfish - shelled molluscs and crustaceans
- shepherd - a person who takes care of sheep
- sherbet - a sweetened, flavored, water ice; diluted fruit juice
- sherry cobbler - a cold beverage made of sherry, lemon juice, etc.
- sherry wine - a medium-sweet, amber color wine with a nut-like taste
- she stuff - cow or heifer
- shield - heavy skin on the shoulder of some boars
- shikar - hunting
- ship - to send
- ship biscuit - hard bread that has good keeping qualities
- shipper style hog carcass - carcass is not split and the head and leaf fat is left with the carcass
- shipping fever - a high fever and general depression in cattle after shipping. To reduce this condition, avoid over-exposure during shipping. There is also a preventive vaccination.
- shishkebab - meat and vegetables placed on a skewer and broiled
- shuring - pleating and compressing sausage casings to shorter length
- shoat (shote) - young hog; older than a pig
- shochet - the person who slaughters animals to be consumed by Jews
- shoddy leather - leather made by compressing into sheets, leather which has previously been ground

- shochet - Jewish cutter (inspector) who manually examines thoracic organs
- shood - chaff
- short - a no resistance connection
- short order - a small meal
- shortcake - a sweet cake
- shortening agent - a substance that causes a cooked flour mixture to have a less resistant structure
- shortening value - the less force required to break (see "shortness") a standard crust or cracker the higher the shortening value and the flakier and lighter the pastry
- short fed - cattle on feed 60-120 days; below choice finish
- short loin - the front area of the loin extending from the flat edge of the hip bone to the last rib. It contains the porterhouse, T-bone and club steaks (back to front).
- shortness - force required to break a standard crust or cracker
- Shorthorn - a breed of beef cattle that may be red, roan, white, or red and white. Horns curve downward and forward. Origin - Northeast England. Imported to America by Gough and Miller of Virginia. See Polled Shorthorn Single Standard, Polled Durham and Double Standard Polled Shorthorn.
- Color determination - white cattle (xx) X red cattle (yy) → roan offspring (xy). Roan cattle (xy) X red cattle (yy) → $\frac{1}{2}$ roan offspring (xy) + $\frac{1}{2}$ red offspring (yy).
- Key: x - gene for white
y - gene for red
- short ribs - a cut of beef made from 2 to 3-inch strips removed across the ribs of the plate
- short wool - see "fine-wool type sheep"
- shote (shoat) - a young hog between 100 and 150 pounds that will be sent to market
- shoulder - the fore arm area of a pork carcass; see "New York style shoulder". About 16% of the hog carcasses (head and leaf fat on)
- shoulder arm roast - a beef roast made from muscles on the fore shank in front of the arm bone
- shoulder clod - see "clear cut shoulder"
- shoulder vein - junction of the neck and shoulder
- showbread - bread placed in a Jewish sanctuary
- shred - cut into long narrow strips
- shredded coconuts - made by shredding ripe coconut meat, mixing with salt and sugar and partially drying
- shrimp - a shell fish (Crangonidae), 50% edible (over 20% protein)

- shrink - loss of weight; loss in weight of grease wool in the cleaning process
- shrinkage (drift) - loss in livestock weight from farm to market
- Shropshire - a medium-wool mutton type breed of sheep that originated in West central England from several native types of sheep. Its face is covered with wool except the mouth and nose area which is usually brown to black. It has no horns and approximately 3/8 grade fleece.
- shroud - unbleached duck cotton cloth used on beef carcasses
- shrouding - placing wet shrouds on a warm beef carcass to absorb the blood and smooth the fat while the carcass is cooling
- shuck - to remove covering or shell
- shunt - to provide an alternate current pathway
- Si - see "silicon"
- sibling - offspring having one or both parents in common
- sicer - strong drink
- sicharon - skin and a thin layer of fat that is salted and fried and is stored in lard
- sickle hock - a hock that has too much bend in it when viewed from the side
- side bone - an unsoundness in horses; hip bone
- side-chain - an aliphatic radical attached to a cyclic group
- sieve - a device for separating fine from coarser parts
- sift - put through a sieve
- sild - young herring
- sigma (Σ, σ) - Greek letter with an English equivalent of s
- significance (statistical) - states that differences between samples are real and not due to chance variation. Significant difference -- (.05)(*). A difference which has a 5% probability of occurring by chance alone. Highly significant -- (.01)(**). A difference which has a 1% probability of occurring by chance alone.
- significant figures - the number of digits in a value which differentiates this value from the one next to it. It is independent of decimal points and zeros.

231	}	all have 3 significant figures
.00231		
2.31		
23100		-----If next number that could be read is 23200

silage - Stored cattle fodder produced by fermentation of green fodder with the production of lactic acid; wt. cu. ft. - 30 to 45 pounds depending on depth in the silo, packing, and the substance from which the silage is made.

silent spirit - distilled spirit with most of the products removed except ethyl alcohol and water

silicle - pericarp or seed vessel

silicon (Si) - an element; at. no. 14; at. wt. 28.09;
electron configuration 2 - 8 - 4
orbit K L M

oxidation states +2, +4, -4

silique - fruit of cabbage or related plants; pods of mustard family

silk fiber - an animal protein fiber constructed of the protein fibroin cemented together by the protein sericin

silk yarn - processed silk that is almost pure fibroin protein

silo - a chamber in which silage is fermented and kept

silver (Ag) - an element; at. no. 47; at. wt. 107.880;
electron configuration 2-8-18-18-1
orbit K L M N O

oxidation state +1

silverside - outside or upper part of a beef round

silver skin - thin membrane on an onion

simmer - cook slowly

simple fruit - fruit formed from a simple ovary; e.g., plum, apple, peach, and pear

simple glyceride - when all three acids of the triglyceride are alike

simple proteins - naturally occurring proteins made up primarily of amino acids

simples - ancient term for herbs

sine - is a trigonometric function;

$$\text{sine} = \frac{\text{ordinate}}{\text{hypotenuse}}$$

sinew - the tendon of a muscle

single-standard polled Durham - cross of native polled cows with horned Shorthorn bulls. Since 1905 all cattle must be traced to recorded stock. In 1919, Shorthorn was substituted for Durham in the name. In 1923 the association was disbanded and the pure polled Shorthorn were registered in the Shorthorn herdbook.

single-standard polled Herefords - registered from 1900 to 1907 and were a cross between a polled breed sire (e.g., Angus or Red Poll) and a horned Hereford cow. Never were registered in American Hereford Record. Since 1949 all lines must be traced to registered Hereford.

sintered glass - see "fritted glass"

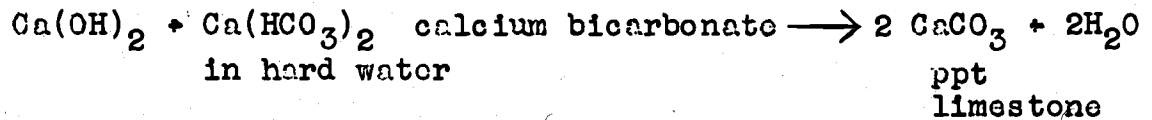
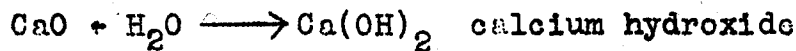
sinus - a cavity

- sinus node - an area in the right auricle which is stimulated by a nerve and causes the auricles to contract
- siphon - a U-tube used to transfer liquid from an upper level to a lower level
- sire - a male parent
- sirloin steak - (back to front) wedge bone, round bone, double bone (flat bone), pin bone (hip bone)
- sirloin strip - (New York cut)(KC steak); the dorsal muscles to the lateral processes of the vertebrae in the porterhouse, T-bone, and club steak area
- sirloin tip - a cut of beef obtained when the hind quarter of beef is cut national style. It is located adjacent to the round and the sirloin and before the rump. See "top sirloin"
- sirup - (syrup); a solution of sugar
- sito- - relationship to food
- sitology - study of food, diet and nutrition
- sitophobia - refusal to eat, fear of food
- sitosterol - a sterol that is found in the unsaponifiable fraction of vegetable oils such as corn, wheat, cottonseed, and linseed; $C_{29}H_{48}O$
- skaddon - larva of bee
- skeel - vessel for milk
- skeletal muscle - voluntary striped muscle
- skellysolve - a petroleum solvent followed by a letter to indicate approximate composition and boiling range
- skep - straw hive for bees
- skewer - a pin for fastening meat
- skid - see "pallet"
- skillet - shallow cooking vessel
- skim - remove top layer
- skin - composed of epidermis, corium and the subcutis as the major layers; a small hide. (In cattle, weighing under 30 pounds after curing). Also pelts of small wild or domestic animals; animal hide used for holding liquids.
- skink - drink
- skinless wiener - a wiener that is cooked and smoked in an artificial casing and then this casing is removed
- skin wool - wool pulled from dead skin
- skip - light common pig or lamb
- skirt - the non-muscle membrane of the diaphragm
- skiver - the outer layer (wool side) of a split sheep skin made into leather and used to line shoes; skewer

slaked lime - calcium hydroxide Ca(OH)_2



slaking - adding CaO (calcium oxide) to H_2O and producing
slaked lime Ca(OH)_2



Also, the addition of water.

slack scalding - see "semi-scalding"

slant - a sloping surface of agar used for microbiological
growth

slapjack - a pancake

slaughterhouse - abattoir

slaw - cabbage served as a salad or relish

slip joint - between ilium and vertebrae

slipping - see "downward trend"

sliwowitz - plum brandy

slop - dealcoholized beer

slop fed - fed on distillers slop

slow demand - see "demand slow"

slunk - prematurely born or unborn animal

slunk skin - skin of an unborn or stillborn calf

Sm - see "samarium"

small casings - pork casings often called rounds; see "rounds"

small numbers - example, 0.000,000,672 = 6.72×10^{-7}

small packers hides - hides taken off by relatively unskilled
labor

smear - a specimen placed on a glass slide for microscopic study

smearwurst - see "mettwurst"

smell - detecting a scent by the olfactory nerves

smiggins - barley soup

Smithfield ham - ham cured with salt, saltpeter and pepper and
smoked with hickory and applewood; it is then aged from
7 to 18 months

smoke - a colloidal system in which a solid is dispersed in a
gas; to hang in smoke and apply smoke to food

smokehouse - a building or container in which food is smoked

smoked meat - meat which has been dried or cured and then wood smoke deposited on it; any hardwood makes a satisfactory smoke

smoked temperatures (meat) -

Smoked Product	Min. Internal Temp.	Recommended Internal Temp.
	137°F	140°F
Tender	140°F and a process leading to tenderizing	
Cooked	148°F and a description of the process which insures partial separation of meat from bone, easy separation of tissue; and cooked color, flavor and texture throughout	
Fully Cooked		
Ready-to-Eat		
Ready-to-Serve		

smoke point - temperature at which fat starts to smoke

Product	C°	
Leaf Lard	220	} -varies with fatty acid content
Average Lard	195	
Old Lard	190	
Crisco	230	

Also see "flash point"

smooth (involuntary) muscle - muscle constructed of cells with a single nucleus found in the visceral area and the walls of most tubes in the body; it has slow rhythmic contractions

smorgasbord - appetizers; table with a variety of food

smorrebred - open sandwich

Sn - see "tin"

snack - a light meal

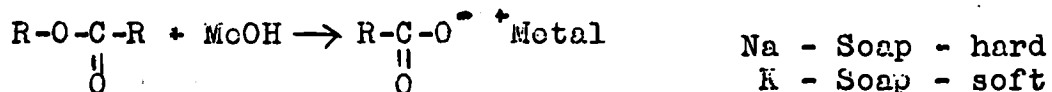
snail - edible type (Helix pomatia) called escargot

snet - deer fat

snout - muzzle or nose in swine

snow (carbon dioxide) - used in chilling - 110°F (-79°C)

soap - obtained by alkaline hydrolysis of animal or vegetable fats or oils



soapstock (foots) - alkali soaps, made from fatty acids, that settle to the bottom during the refining of oils

soapstone - used in laboratory table tops; Cleaning: clean with solvents; Dressing: 1 lb. paraffin
1 qt. kerosene
2 qts. raw linseed oil } apply hot and buff in 2 hrs.

soda - various sodium compounds

baking soda - bicarbonate of soda (sodium bicarbonate) -
 NaHCO_3

caustic soda - NaOH

washing soda - sodium carbonate - Na_2CO_3

soda ash - an alkaline cleaner with good buffer capacity.

It is a poor water softener, fair deflocculating material and fair emulsifier

soda cracker - cracker made with cream of tartar

soda glass - glass with a low melting point, a high coefficient of expansion and will break easily under thermal shock

soda water - carbon dioxide in water under pressure

sodium (Na) - an element; at. no. 11; at. wt. 22.997;

electron configuration 2-8-1
orbit K L M

oxidation state +1;

Body function - in buffer system, in saliva, pancreatic and intestinal juices

sodium alginate - carbohydrate extracted from seaweed and used as an emulsifying and thickening agent; used in ice-cream to prevent growth of ice crystals

sodium ascorbate - $\text{C}_6\text{H}_7\text{O}_6\text{Na}$; see "ascorbic acid"

sodium benzoate - $\text{C}_7\text{H}_5\text{NaO}_2$; often used as a food preservative

sodium bicarbonate (NaHCO_3) - source of CO_2 in baking powder; see "baking soda"

sodium carbonate - Na_2CO_3 - washing soda

sodium carboxymethylcellulose - polycarboxymethyl ester of cellulose used as a thickening, emulsifying and stabilizing agent

sodium chloride (NaCl) - common household salt; used in preserving foods, curing hides

sodium citrate ($\text{C}_6\text{H}_5\text{Na}_3\text{O}_7 \cdot 2\text{H}_2\text{O}$) - Fe and Ca complexing agent in food; prevents coagulation of blood; see "citrate"

sodium cyclamate ($C_6H_{12}O_3NSNa$) - artificial sweetener

sodium fluoride (NaF) - an inorganic insecticide; an anti-ferment

sodium hydroxide - $NaOH$, caustic soda

sodium hypochlorite ($NaClO$) - a disinfectant and deodorant that can be used on food handling material; used for chlorination of water. Includes:

	<u>% Chlorine</u>
Clorox	} 2-6% Household use 10-18% Industrial use
& Purex	

sodium iso-ascorbate - see "ascorbic acid"

sodium metabisulfite ($Na_2S_2O_5$) - used as a preservative for silage

sodium metasilicate - an alkaline cleaner that has good alkalinity, deflocculating and emulsifying properties; it is a fair water softener

sodium nitrate ($NaNO_3$) (chilean saltpeter) - used in meat curing; fertilizer notation 16-0-0.2

sodium nitrite - $NaNO_2$; used in meat curing

sodium silicate - Na_2SiO_3 - water-glass, used as a preservative for eggs

soft drink - non-alcoholic beverage of many flavors

soft glass - see "soda glass"

soft hog - hog fed on acorns or peanuts

soft soap - potassium soap

soft water - water containing few minerals

soft-wheat flour - dough made from this flour tends to break rather than stretch giving a light porous structure to the baked product

soil - covering of the earth

<u>classification</u>	<u>size in mm</u>
gravel	over 2
sand, coarse	0.2 - 2.0
sand, fine	0.02 - 0.2
silt	0.002 - 0.02
clay	less than 0.002

soja - soybean

solanine - toxic glycoside in potato sprouts (0.04%)

solar - sun

solder - (for tin can); see "tin can"

sole - see "demersal fish"

solid fat index - proportions of solid to liquid in fat;
see "dilatometry"

solidified foam - a colloidal system in which a gas is dispersed
in a solid; e.g., pumice

solidifying point - freezing point

solids-not-fat - solids in milk excluding fat

solubility - the amount of a given product (solute) that will
dissolve in a given solvent at a given temperature

solubility product (K_{sp}) - when AB (solid) $\rightleftharpoons A^+ + B^-$

$$K_{sp} = (A^+)(B^-)$$

soluble - capable of being dissolved

solute - a substance dissolved in a solvent

solution - a homogeneous mixture of 2 or more substances

solvent - substance having the power of dissolving other
substances

sop - food dipped in a liquid

sopressata - see "frizzio"

sopressata - sausage placed in wrinkling hog middles

sorbet - a water, ice, and liquor mixture

sorbic acid - (not ascorbic) $CH_3-CH=CH-CH=CH-C-OH$

an unsaturated fatty acid with two double bonds. Used
as a fungistatic agent in some foods; it is a harmless
fatty acid that can be metabolized by humans.

sorbitol - $C_6H_{14}O_6$ A 6-carbon alcohol found in food;

used to sweeten diabetic food; 60% as sweet as sucrose

sorbose - ketohexose $CH_2OH(CHOH)_3CO\cdot CH_2OH$

sorghum - sometimes called millet; millo maize; an annual grass
plant that can be used for grain, syrup (sorghum syrup)
or ensilage (56 lbs./bu); grain harvest - grain 14%
moisture; grain storage - grain 12% moisture; pE 5 - 5.5

Approximate nutrient used for:

<u>40 bu. of grain</u>	<u>2 tons of fodder</u>
33	41 lbs. N
20	13 lbs. P_2O_5
7	63 lbs. K_2O

sorghum syrup - syrup obtained from the concentration of sugar sorghum sap. Contains: not more than 30% water
not more than 6-1% ash (dry wt.)
about 36% sucrose
about 27% glucose

sorrel - reddish color

souffle - light and frothy; a fluffy beaten egg white dish

soundness - free from disease and has no abnormality of structure that will interfere with usefulness

soup - liquid food made by boiling meat and/or vegetables

soupbone - a bone used in making soup

sour - taste sensation of tart or acid

sour milk - caused by the action of lactic acid bacteria on milk producing lactic acid which gives it the sour taste; optimum temperature 40°C for souring; see "lactic acid", "curd", "whey".

souse - (sulze); a jelled product made from pork: snouts, checks, skins. Seasoning, vinegar and commercial gelatin are also added and it is then cooked.

Southdale - a breed of sheep originated by USDA by crossing Southdown and Corriedale.

Southdown - a medium-wool mutton type breed of sheep that originated in southeastern England from native Sussex sheep. Face is brown to gray-brown in color, and has a small compact body, no horns and fleece grades from 3/8 to 1/2.

southern corn rootworm - an insect which bores into corn stalk just below the ground. Bud of young plant wilts. Worse after a heavy green manure crop. Control: aldrin, heptachlor.

southern wool - wool produced in S.E. United States and is of uneven type and quality

sow - a female hog that has or soon will farrow a litter of pigs; Average gestation period - 114 days (range 110-120)
Average duration of heat - 2-4 days
Normal recurrence of heat - 21 days;

To scatter seeds

soxhlet - device used for extraction

soy - soybean; sauce prepared from a bean (Soja hispida)

soya - soybean; a bean grown for oil (20%) and protein (40%); contains a trypsin inhibitor which can be inactivated by heat; contains 25% carbohydrate

soybean (soja, soy, soya) (Glycine max and Soja hispida) - an annual leguminous plant used for hay, beans, flour, meal, oil and soy sauce; 50-60 lbs./bu.; approximately 1.6 lbs./qt. (whole); harvest hay - beans are fully developed and lower leaves yellowing.

Varieties:	Dorman	Ogden	Bean Composition:	
	Jackson	Ottolan	Protein	34-40%
	Laredo	Roanoke	Sugar	17-28
	Lec	Wabash	Fat	17-18
			Water	10.0
			Fiber	4.9
			Ash	4.6 - 4.7

soybean meal - (fertilizer); soybeans without oil and can be used as a fertilizer material; 7-1.2-1.5

soybean milk - extract of soybean used for people allergic to cow's milk

soybean oil - oil obtained by pressing or extracting the soybean; used in cooking; flash point - 525°C; titer 25°C; acid value 0.5 - 3.0; iodine value 125-140; saponification value 190-195

soybean oil meal - 1.4 lbs./qt.

soy flower - 40-60% protein, 20% fat (5% if defatted)

soy proteinate - water soluble soy protein made by washing precipitated globin (pH 4.6) with water and neutralizing with NaOH and spray-drying. Free of sugar and fiber.

soy protein concentrate - made by removal of soluble sugars from defatted soy flakes. 70-74% protein (dry basis)
5.8% ash
3.6% crude fiber
0.5% fat

soy protein isolate - not less than 90% protein on a moisture free basis

soy sauce - fermented and hydrolyzed soya bean

spadic - leaves of coca (narcotic) plant

spaghetti - a mixture of wheat flour and water (sometimes also milk and eggs) that has been dried into a 3/32-inch diameter solid rod (.06 to .11 inch diameter range); may be but seldom is tubular. Other variations:

fedelini - less than 1/32 inch diameter solid rod

vermicelli - 1/32 inch diameter solid rod

forati - 1/8 inch diameter solid rod

fidolini (fettucelle) - flat strips

trenette - flat strips 1/2 as wide as fidolini

spaghetti with meat and sauce - minimum of 12% meat

spaghetti with meat balls and sauce - minimum of 12% meat

Spanish - a mediterranean class of chickens that lays a white shelled egg; Variety: white-faced black

Spanish sheep - Merino

spareribs - ribs removed from the belly area of a hog (sometimes beef) carcass; Spareribs are 2- $\frac{1}{2}$ to 4% of hog carcass

sparkling burgundy - a coralline-red, dry wine with a vinous flavor but not the robustness of other burgundies

sparkling wine - a wine with an excess of carbon dioxide (several atmospheres at room temperature)

spatula - a thin blade device used for transferring

spayed heifer - unsexed heifer which has had her ovaries removed; scar in front of left hip

spaying - removal of ovaries

spearmint - a flavoring agent containing carvone, linalol, and pinene obtained from leaves and tops of Mentha spicata L.

species - a taxonomic category below a genus and above a variety

specific gravity - (S.G.); ratio of the densities of a given substance compared to a standard (usually air or H₂O)

$$S.G. = \frac{\text{density of substance}}{\text{density of standard}}$$

The temperature is usually also given. It is often in the form of a fraction; temperature of substance/temperature of standard.

specific heat - amount of heat expressed in BTU required to raise the temperature of one pound of a substance 1°F or heat required to raise the temperature of 1 gram 1°C

specific rotation $[\alpha]$; $[\alpha]_D^{20}$ is angle of rotation produced

by cm³ of material at 20°C using a sodium light

specific volume - the volume that 1 g will occupy at a specific temperature and pressure; Reciprocal of density

spectro grade - a designation of a grade of chemical purity; a high grade solvent that will provide low absorption

Chemical grades according to decreasing purity:

1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

spectrophotometric analysis - an optical analysis based upon the intensity of light (at known wave-length) transmitted through a sample.

spelt - a German species of grain; coarse wheat

spermaceti - waxy substance obtained from whale used in soap;
iodine number 3-5; saponification number 120-135

sphingosine - a nitrogenous base $C_{18}H_{33}(OH)_2 \cdot NH_2$

spice - a vegetable having a fragrant or aromatic odor and a
pungent flavor used to season food, usually contains
essential oils

spider mite - an insect which has the following characteristics:
less than 1/8 inch long
8 legs
wingless
soft
round body
green, yellow or red

Suck sap from cotton leaves and produce webbing causing
leaves to become yellow to red. Control: ethion, trithion,
demeton

spinach - a vegetable (Spinacia oleracea) whose leaf is used as
food; plants used include watercress, dandelion, and
mustard; 2% protein, 0.2% fat

spinach juice - a green coloring material often used to color
food

spinous processes - see "feather bones"

spirilla - a subdivision of bacteria indicating their shape
resembling that of a corkscrew; (Latin - coil shaped)

spirit - volatile or distilled liquid or volatile material

spirit of orange - alcohol containing oil of orange peel

spirit of salt - hydrochloric acid solution

spirit of turpentine - volatile oil of turpentine; is "gum
spirits of turpentine" and "wood turpentine"

spirit of wine - ethyl alcohol solution

splenius - a triangular shaped muscle in the neck area that
lies dorsal and lateral to the complexus

splint - a bony type growth occurring on the cannon bone

sponge - fibrous skeleton of Euspongia officinalis

sponge cake - a light sweet cake

spongy bone tissue - see "cancellated bone tissue"

spit - a skewer on which meat is placed and rotated

spleen - milt; a ductless gland near the gullet end of the
stomach

spoil - to decay, perish or lose valuable qualities

spoon - a concave utensil used for eating foods

spore - reproductive element of lower organisms that are in
the resting state and are highly resistant to heat

sport - polled mutant from horned parents

Spotted Poland China - a meat type breed of hogs originating in Ohio from the blending of several strains. (Bedfordshire, Big China, Big Spotted China, Byfield, Irish Grazier and Russian strains). Their color is black and white (20-80% white) spotted and have drooping ears

sprat - fish related to herring

spray dry - liquid sprayed into a hot chamber and quickly dried while falling

springer - due to freshen; see "fryers"

spring wheat - wheat that is planted in the spring

sprout - young growing shoots or buds

sprouting - isopropyl N-(3-Chlorophenyl) carbamate used to inhibit sprouting in potatoes

spud - potato; bread boiled in oil

squab - young poultry particularly pigeon

squab grade - see "poultry grades"

square centimeter (cm²) - a measure of area;
 1 cm² = 0.1550 square inch
 = 10⁻⁴ sq. meters

square chain - a measure of area; 10 sq. chains = 1 acre

square feet (sq. ft.) - a measure of surface area
 1 sq. ft. = 929.0 sq. centimeters (cm²)
 = 144 sq. inches (sq. in.)
 = 0.11111 sq. yards (sq. yd.)
 = 0.09290 sq. meters (m²)
 = 0.000,022,96 acres (A)
 = 0.000,009,290 hectares (ha)
 = 0.000,000,092,90 sq. kilometers (km²)
 = 0.000,000,035,87 sq. miles statute
 9 sq. ft. = 1 sq. yard

square inch (sq. in.) - a measure of surface area

1 sq. in. = 6.452 sq. centimeters (cm²)
 = 0.006,944 sq. feet (sq. ft.)
 = 0.000,771,6 sq. yards (sq. yd.)
 = 0.000,645,2 sq. meters (m²)
 = 0.000,000,159,4 acres (A)
 = 0.000,000,064,52 hectares (ha)
 = 0.000,000,000,645,2 sq. kilometers (km²)
 = 0.000,000,000,249,1 sq. miles statute
 144 sq. in. = 1 sq. foot
 0.155 sq. in. = 1 sq. centimeter (cm²)

square kilometer (km^2) - a measure of surface area

- 1 km^2 = 10,763,867 sq. feet (sq. ft.)
- = 1,195,985 sq. yards (sq. yd.)
- = 1,000,000 sq. meters (m^2)
- = 247.104 acres (A)
- = 100 hectares (ha)
- = 0.38610 sq. miles statute

square meter (m^2) - a measure of surface area

- 1 m^2 = 10,000 sq. centimeters (cm^2)
- = 1,549.99 sq. inches (sq. in.)
- = 100 sq. decimeters (dm^2)
- = 10.7639 sq. feet (sq. ft.)
- = 1.195,99 sq. yards (sq. yd.)
- = 0.000,247,1 acres (A)
- = 0.000,1 hectare (ha)
- = 0.000,001 sq. kilometers (km^2)
- = 0.000,000,386,1 sq. miles statute

square mile (statute) - a measure of surface area

- 1 sq. mile = 27,878,400 sq. feet (sq. ft.)
- = 3,097,600 sq. yards (sq. yd.)
- = 2,589,999 sq. meters (m^2)
- = 640 acres (A)
- = 259.000 hectares (ha)
- = 2.59000 sq. kilometers (km^2)

square millimeter (mm^2) - a measure of surface area

- 1 mm^2 = 1,973.5 circular mils
- = 0.01 cm^2
- = 0.001,55 sq. in.

square perch - see "square rod"

square pole - see "square rod"

square rod - a measure of surface area

- 1 sq. rod = 625 sq. links
- = 30.25 sq. yds.
- = 25.29 sq. meters
- = 1 sq. perch
- = 1/160 acre
- 160 sq. rods = 1 acre
- 40 sq. rods = 1 rood = $\frac{1}{4}$ acre

square root (long hand) - a factor of a number which if squared will yield the number

- a. Start at decimal and mark off every 2nd place on both sides of decimal
- b. Start with 1 or 2 numbers to the left of the last mark on the left
- c. First number of answer is the largest sq. root that will go into this number
- d. Write this number squared under the number and subtract
- e. Bring down next 2 numbers
- f. Multiply by 2 the number(s) in the answer to this point and write it to the left of the subtracted answer
- g. The next number in the answer will be determined by dividing the value "f" into the remainder. This number is written to the right of the "f" value and also in the answer. The number just placed in the answer is multiplied by this new "f" value, and written under the remainder.
- h. Subtract and bring down next 2 numbers and repeat "f", "g" and "h" for as many decimals as required.

Example: Sq. root of 20507013.0

$$\begin{array}{r}
 \begin{array}{cccccccc}
 & 4 & 5 & 2 & 8. & 4 & 6 & 7 \\
 \sqrt{20} & 50 & 70 & 13.00 & 00 & 00 \\
 \underline{16} & & & & & & & \\
 85 & 4 & 50 & & & & & \\
 \underline{4} & 25 & & & & & & \\
 902 & 25 & 70 & & & & & \\
 \underline{18} & 04 & & & & & & \\
 9048 & 7 & 66 & 13 & & & & \\
 \underline{7} & 23 & 84 & & & & & \\
 90504 & 42 & 29 & 00 & & & & \\
 \underline{36} & 22 & 56 & & & & & \\
 905680 & 6 & 06 & 44 & 00 & & & \\
 \underline{5} & 43 & 41 & 10 & & & & \\
 9056927 & 63 & 02 & 84 & 00 & & & \\
 \underline{63} & 39 & 84 & 89 & & & &
 \end{array}
 \end{array}$$

square yard (sq. yd.) - a measure of surface area

1 sq. yd. = 1,296 sq. inches (sq. in.)
 = 9 sq. feet (sq. ft.)
 = 0.83613 sq. meters (m²)
 = 0.000,206,6 acres (A)
 = 0.000,083,61 hectares (ha)
 = 0.000,000,836,1 sq. kilometers (km²)
 = 0.000,000,322,8 sq. miles statute

30,25 sq. yd. = 1 sq. rod

1.196 sq. yd. = 1 sq. meter

squash - a vegetable (gourd family) whose fruit is used as food, 40 lbs./bu.; seed - 3 lbs./acre; spacing - 3 feet apart in 4 foot rows

squid - cephalopod with 10 arms used as fish bait

Sr - see "strontium"

stabilizers - food additives that thicken, prevent separation, prevent flavor deterioration, retard oxidation by increasing the viscosity and producing a smoother product. Examples - pectin, gelatin, and gums

stag - a male animal castrated after he has reached the age to develop a masculine character; when compared to an animal castrated early in life the stag will have a thicker neck and shoulders and coarse hair and bones; young male chickens nine months to twelve months old and beginning to develop spurs; male of several wild animals

stagnant market - a downward trend

stain - a chemical used to color tissue for microscopic study

stainless steel - chromium steel

iron - 70 - 90%

chromium - 12 - 20%

carbon - 0.1 - 0.7%

staking - flexing a tanned hide over a metal blade to make the fibers pliable

stale - not fresh

stalk - plant stem

stallion - a male horse

stamen - male part of a flower that bears the pollen

standard deviation (σ) - variation of observations; a σ of one population cannot be compared with the σ of another population because the σ is somewhat dependent on the sample magnitude.

$u \pm 1 \sigma$ = point of inflection in a normal distribution

$u \pm 1 \sigma$ = 2/3 of observations in normal distribution

$u \pm 2 \sigma$ = 95% of observations in normal distribution

$u \pm 3 \sigma$ = 99.74% of observations in normal distribution

Estimated by sample standard deviation(s)

$$s = \sqrt{\frac{\sum x^2}{n-1}} = (\text{same units as original data})$$

x = deviations from mean
 n = sample size

a quick but inefficient estimation of σ

$$\text{rough estimation of } \sigma = \frac{\text{Largest value of } X - \text{small value of } X}{C}$$

n	C
5	2
10	3
25	4
100	5

Interval estimate of σ (95% level)

$$\frac{\sum x^2}{\chi^2_{0.025}} \leq \sigma^2 \leq \frac{\sum x^2}{\chi^2_{0.975}}$$

Test of σ^2

$$\chi^2 = \frac{\sum x^2}{\sigma_o^2}$$

σ_o^2 = Value is assigned according to your H_0 ;
 (Example: comparing with known σ of another sample)
 $df = n-1$

standard error (σ/\sqrt{n}) - approximated by estimator of standard error ($S\bar{x}$)

$$S\bar{x} = \frac{s}{\sqrt{n}}$$

s = estimation of standard deviation

$$\sqrt{\frac{s^2}{n}}$$

s^2 = estimation of mean square

standard taper - see "ground glass joints"

standing rib roast - a roast made from the fore quarter of beef and comes from the 7 to 12 rib area. The inside portion of the backbone is removed and the ribs are cut at the end of the rib eye muscle.

Staphylococcus aureus - the bacteria often found in grape-like clusters of which some strains produce a toxin responsible for the most frequently occurring type of food poisoning. They are gram positive cocci, facultative anaerobes and are easily destroyed by elevated temperature. People having this type of food poisoning usually recover in 1 to 3 days. Heating to 60°C will kill this bacteria but the toxin is stable to boiling temperature for extended periods.

Staphylococcus enterotoxin - a heat resistant toxin produced by Staphylococcus aureus

staple - items commonly produced

starch ($C_6H_{10}O_5$)_x - is a carbohydrate made up of many glucose units (1 & 4 α linkage). Found in seeds and roots. Major source of food and feed energy. Amylose content

corn	25-30
potato	20-29
rice	15-18
wheat	25-35

Also see "binder"

starch gum - dextrine

starch sugar - glucose

starr - a variety of millet

starter cultures - Bacterial cultures added to meat, milk (cheese, butter) or other fermentations; In meat, Pediococcus cerevisiae can be used; not more than 0.5% used in cervelat, salami, and thuringer.

starvation - suffering from want of food; perish from hunger; die from lack of food

stationary - prices same as for previous period

stationary phase - a stage in bacterial growth following the logarithmic growth phase in which the number of bacteria do not change

stave - wooden pieces that make the side of a barrel, cask or bucket

stayed fur - pelts that have fabric on the leather side

stayman winesap - a variety of apples that is in season from November to February; are excellent cooking and sauce apples and good eating apples.

steady market - see "market steady"

steam - water in a gaseous state; cook in steam

steam bone meal - a dried, ground product obtained from cooking bones with steam under pressure

steam distilled wood turpentine - wood turpentine distilled with steam from the oleoresin in wood or extracted from wood.

steam jacket - a double wall cooking vessel in which steam between the walls is used for heating

steam-rendered lard - live steam under 30 to 50 lbs. of pressure is introduced into a container with the fat

stearic acid (octadecanoic acid) - $\text{CH}_3(\text{CH}_2)_{16}\overset{\text{OH}}{\underset{\text{O}}{\text{C}}}$

An 18-carbon saturated acid found in animal and vegetable fats especially beef; m.p. 69°C ; titre $54-55^\circ\text{C}$; saponification value 207-210; acidic value 206-210; iodine value 3-7

stearine - a hard hydrogenated fat; (tristearate); iodine value below 20; m.p. $135-155^\circ\text{F}$

steel - a hand tool (smooth or ribbed) that is used to straighten the wire edge of a knife and to keep it sharp; iron containing 0.1 - 1.5% carbon

steel cut oatmeal - cut oatmeal

steep - extracting in liquid just below the boiling point

steer - a male bovine that has been castrated before he developed any masculine characteristics

steer-bull - cryptorchid

steer wrestling - throwing a steer without the aid of a rope

stem - principal body of plant

stem correction - correction applied to a thermometer to correct for the thermometer liquid not in the sample

stere - solid measure; 1 stere = 1 cu. meter or 35.316 cu. feet

stereoisomerism - compounds with the same general chemical formulas but different configurations; Examples: trans vs. cis or dextro vs. levo

sterile - contains no microorganisms

sterile-male technique - method of controlling pests by producing and releasing sterile males of the specie

sterilization - process of destroying micro-organisms; dry heat - 320°F for 1 hour

sterling silver - may be called silver or solid silver; must be 925/1000 pure silver

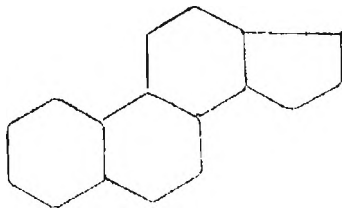
sternal ribs - articulate directly with sternum; see "ribs"

sternum - breast bone

sternum sternabrae - breast bone that attaches first ribs together (Hog - 6)

steroid - compound that contains the following ring structure:

Examples: bile acids, vitamin D, and sex hormones.



sterol - alcohol derived from steroid; a group of cyclic alcohols of complex structure with a base consisting of 3 six-member rings and 1 five-member ring. Secondary alcohol and various side chains are also in the structures; cholesterol best known.

stew - cook slowly in liquid; should have a minimum of 25% meat on a fresh meat weight basis

stick - tankwater collected in evaporators

sticking knife - 6-7 inch blade, sharpened on both sides

stiffs - see "osteomalacia"

stifle joint - joint between hind shank and leg bone (femoro-tibis-patello joint); in live animals just behind rear flank

stigma - portion of pistil where pollen is applied

stilbestrol - synthetic female sex hormone used in meat animals

still - an instrument for separating liquids by distillation

stilton - a semi-hard cheese from England

stimulus - energy change in the environment which affects one of the senses

stir - to cause to move

Stirling's approximation formula - see "factorial"

stitches - individual injections of a pickle into meat about to be cured

stock - short name for livestock; liquid used to extract water soluble material from food

stokes - 1.076×10^{-3} sq. ft./sec.

stoma - pore in leaves

stomach - pouch between the esophagus and the intestine in which food is practically digested

stomach insecticide - pesticide that kills an insect that ingests it

stout - strong, dark beer

straight grade flour - grade of white flour which may be made from 97 to 100% of all the white flour milled

straight whiskey - see "bottled in bond"

strain - pass through a filter

strained honey - honey separated from comb by straining after the comb has been crushed

straw - the stem of grain after thrashing

strawberry - fruit of the species Fragaria; 0.7% protein, 0.5% fat

streph- - twisted

strepho- - twisted

strepto- - twisted

streptococcus - spherical bacteria

streptomycin - an antibiotic agent obtained from Actinomyces griseus and is active against a variety of gram-negative and some gram-positive bacteria

striated - cross-striated

striated (voluntary) muscle - skeletal muscle tissue that has cross striations that may be seen under a microscope; subdivided into two types:

- (a) White (based on gross color)
 - Shorter twitch time - faster
 - Can be extremely active but fatigues rapidly
- (b) Dark or red (based on gross color)
 - Contracts slowly but can sustain activity
 - O₂ uptake greater
 - Higher sarcoplasmic myofibril ratio
 - More myoglobin
 - Large energy phosphate supply
 - Higher glycolytic capacity

stringhalt - an unsoundness of horses

strip steak - steaks made from the loin strip

stroma - framework connective tissue of an organ

strong market - see "market strong"

strontium (Sr) - an element; at. no. 38; at. wt. 87.63;

electron configuration 2 - 8 - 18 - 8 - 2
orbit K L M N O

oxidation state +2

structural formula - a formula which tells which groups are attached to each carbon atom

structural isomerism - compounds with the same empirical and molecular formulas but different structure arrangements

strychnine - $C_{21}H_{22}N_2O_2$ a pest exterminator derived from

strychnos nuts

stubble - the stalk of grain left in the ground after cutting

stud - horse breeding establishment or a stallion

student's t-distribution - see "t-distribution"

stuff - to forcibly fill

stuffing - dressing placed in meat

sub- - under, below

sub clover - a winter annual grass

subcutis - the 3rd layer of the skin which attaches it to the lower structures; it consists of collagenous and elastin fibers and fatty deposits

subjective - affected by personal bias; individual experience;

Example - taste panel

sublime - refine

sublime olive oil - see "virgin olive oil"

subscapularis - a muscle of the chuck located medial to the scapula

substrate - substance acted upon by an enzyme or ferment:

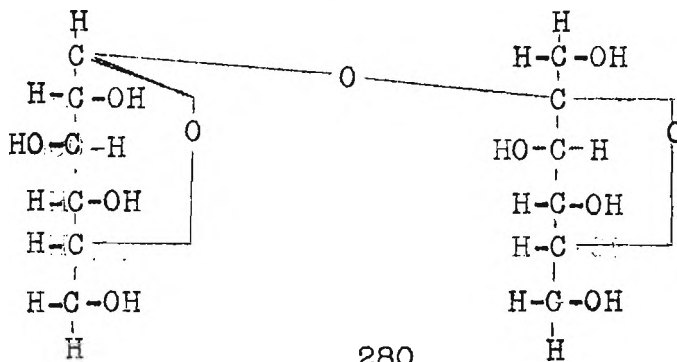
media on which microorganisms may be grown

succotash - mixture of beans and corn

sucrase - a carbohydrate digestion enzyme used to break down sucrose into glucose and fructose

sucrol - a sweetening agent 200 times as sweet as sucrose

sucrose - a sugar made up of a molecule of glucose and a molecule of fructose $C_{12}H_{22}O_{11}$; used as a sweetening agent and food.



Found in sugar cane (15-20%), sugar beet (10-17%), sugar maple and some palm trees; often called cane sugar or sugar; does not reduce Fehling's solution.

- Sudan grass - an annual grass used for grazing and hay;
 seeding 32 lbs./bu; 10-40 lbs./acre; pH 5 - 5.5;
 harvest - when heading out
- suede - leather made from the inner layer of sheep skin
- suet - fatty tissue, about 4% of a choice steer carcass; when rendered it yields tallow; m.p. - 45-50°C; iodine number 30-45; saponification number 190-195.
- Suffolk - a medium wool mutton type breed of sheep originating in southeastern England; it was started by crossing the Southdown with the Old Norfolk; they have a jet black face with no wool on face or ears and no horns; their fleece grade is approximately 3/8.
- sugar - see "sucrose" and "sweeteners"; 1 barrel = 350 lbs.
- sugar beet - the root (Beta vulgaris) is 12% sucrose
- sugar cane - a perennial grass (Saccharum officinarum) which produces sap (contains 17% crystallizable sugar) from which sugar is made
- sugar cane syrup - see "top syrup"
- sugar millet - sorghum
- sugar syrup - sugar and water
- suint - a substance found in wool, associated with wool grease but is water soluble
- sulf - a prefix for sulfur
- sulfate ion - SO_4^{--}
- sulfate of potash-magnesia - a neutral fertilizer material;
 K_2SO_4 ; MgSO_4 ; 0-0-22; 11% available magnesia MgO
- sulfhydryl - -SH group
- sulfide ion - S^{--}
- sulfite - SO_3^{--}
- sulfonic acid ($\text{R-SO}_2\text{OH}$) - hydrocarbon in which a hydrogen atom was replaced by the sulfonic acid group; I.U.C. - hydrocarbon followed by sulfonic acid
- sulfonic acid group - $-\text{S}(\rightarrow \text{O})_2\text{OH}$
- sulfur (S) - an element; at. no. 16; at. wt. 32.066;
 electron configuration 2-8-6
 orbit K L M
 oxidation states +4, +6, -2
 Body function - necessary for growth and reproduction;
 in methionine, cystine and glutathione
- sulfur dioxide - SO_2 ; used as a preservative or disinfectant or bleaching agent in some foods; evaporates during boiling; Campden tablets yield SO_2 in the presence of fruit juice

sulfuric acid (H₂SO₄) - Mol. wt. 89.08; Eq. wt. 49.04

<u>Commercial strength</u>	<u>Mole/l</u>	<u>g/l</u>	<u>% by wt.</u>	<u>Specific gravity</u>	<u>Normality</u>
	18.0	1766	96	1.84	36.0
	-	-	94	1.831	35.1

Ml. of 94% H₂SO₄

to dilute to 10 l.

Approximate Normality

2.8	.01
5.7	.02
28.4	.10
141.8	.50
283.5	1.00

sulfuric acid, fuming - H₂SO₄ containing free SO₃

sulph- - prefix for sulfur

sulze - see "souse"

sumac - plant used in tanning and dyeing

summation - \sum

summer sausage - a dry sausage originating in Germany made from pork and beef; it is seasoned (2-1/2 lbs. salt/100 lbs. meat), reground and cured in thin trays for several days; it is stuffed in casings, smoked and aged in a cool place for several weeks.

summer savory - fresh or dried leaves of an annual plant used in flavoring

sum of squares - ($\sum X^2$); values are squared and then summed; sum of squares (corrected) of deviations from sample mean ($\sum x^2$).

$$\sum x^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

or

$$\sum x^2 = \sum X^2 - \bar{X}(\sum X)$$

or

$$\sum x^2 = \sum X^2 - n\bar{X}^2$$

sundae - ice cream with flavoring and fruit

sun dried food - foods dried without the use of artificial heat

sunflower - plant (Helianthus annuus) grown for seed, animal feed and oil

sunflower oil - oil extracted from sunflower seed (30-45%);
used as food, salad oil and in making candy and margarine

0.924 - 0.926 specific gravity
1.474 - 1.478 refractive index (15.5°C)
188 - 194 saponification #
120 - 135 iodine #
16 - 20 titer
0.6 acid value

sunshine vitamin - see "vitamin D"

super - above

supercarbonate - bicarbonate

superficial - near the surface

superheated - heated above the liquid state boiling point

superior - see "cranial"; also means above

superphosphate - a neutral fertilizer material; primarily
calcium dihydrogen phosphate; $\text{Ca}(\text{H}_2\text{PO}_4)_2$; 0-18-0 or 0-20-0;

rock phosphate that has been treated with sulfuric acid

supersaturated solution - a solution which contains a greater
concentration of a substance than would be present in a
saturated solution; (unstable system)

supper - last meal of the day

supra- - above or over

supraspinatus - a muscle of the chuck located lateral to the
scapula and above the spine of the scapula

surface - surface of a sphere = $4 \pi r^2 = D^2 \pi$; $\pi = 3.1416$

Lateral surface of right cylinder = $2 \pi rh$

Total surface of right cylinder = $2 \pi rh + 2 \pi r^2$

Lateral surface of a right cone = πrs ; s = slant height

Total surface of right cone = $\pi rs + \pi r^2$

surface active agents - a molecule with one portion that is
hydrophobic and another portion which is hydrophilic;
this substance is active at the interface and reduces
the surface tension; increases spreading and wetting.

surface tension - surface of a liquid acting like an elastic
film due to attraction of molecules

suspension - a colloidal system in which a solid is dispersed
in a liquid; Example - muddy water

Sussex - an English class of chickens with white skin, single
comb, white shanks and lays a brown shelled egg;
varieties: speckled, red, light

swede - a root of a plant (Swedish turnip) used for food;
1% protein, .01% fat, 4.3% carbohydrate

Swedish sausage - see "goteborg"

sweeny - an unsoundness of horses

sweet - taste sensation of sucrose (sugar) or honey

sweet basil - see "basil"

sweetbread - thymus gland of calves; (pancreas is also sometimes referred to as sweetbread)

sweet cayenne pepper - see "paprika"

sweet chocolate - mixture of powdered sugar, vanilla, and warm chocolate paste

sweet cooking chocolate - sold in a 4-ounce bar containing 18 squares; rich and light flavor

sweet clover - a biennial used for hay; seeding 60 lbs.

hulled/bu.; 32 lbs. unhulled/bu.; pH 6.5 - 6.8;

harvest - at start of bloom; see "dicumarol"

sweetened condensed milk - evaporated milk with sucrose or dextrose added so that it contains 40% to 45% (by weight) sugar; will keep without sterilization; Min. - 8.5% milk fat; Min. - 28% total milk solids

sweetened condensed skimmed milk - sweetened with sucrose or dextrose; Min. - 24% milk solids

sweetening agents -

<u>Sugars</u>	<u>Synthetic</u>	<u>Others</u>
100% sucrose	55000% saccharine	70% glycerin
173% fructose	25000% dulain	70% glycine
74% glucose	3000% sucaryl	
40% xylose		
33% maltose		
16% lactose		

sweetmeat - confectionery made with sugar; fruit preserved with sugar

sweeteners (sausage) - maximum 2- $\frac{1}{2}$ %

Maple sugar

Invert sugar

Corn syrup solids

Corn syrup

Sucrose (cane or bee sugar) is self limiting

sweet oil - olive oil

sweet pickle cure - a pickle which contains sodium chloride and sugar dissolved in water and is used to cure meat; it will usually contain some nitrite and nitrate and often other ingredients

sweet pickle cure - a pickle which contains sodium chloride and sugar dissolved in water and is used to cure meat; it will usually contain some nitrite and nitrate and often other ingredients

sweet potato - a vegetable whose root is used as food; approx.

nutrients used for:	<u>200 bu. root</u>	<u>1 ton vine</u>
	30	40 lbs. N
	10	11 lbs. P ₂ O ₅
	50	33 lbs. K ₂ O

sweet vermouth wine - a smooth wine with a trace of herbs and aromatics in its flavor

sweet wine - sufficient sugar in the end product to give a sweet taste; In 100 cc (20°C):

Not less than 1 g. sugar

Not less than .16 g. of ash in sweet red wine

Not less than .13 g. of ash in sweet white wine

swells - gas production in a can causing it to expand;

hard swell - permanently extended ends

soft swell - ends can be moved but not back to original position

springers - end can be forced back but opposite end will bulge

flipper - end will bulge when can is struck.

swine - hog

swing churn - a churn which functions by swinging rather than rotation

swirl - a whorl of hair in a hog

Swiss - a hard cheese with "eyes" and has a sweet, nutty flavor

Swiss cheese grade - U. S. Grade A
B
C
D

Swiss imported - a hard cheese

switch - long hair on tail

symmetry - balanced, smooth, blending of parts

syn- - with or together

synergist - cooperative materials; cooperation where values are greater than the total of the two; often used in connection with antioxidants and is a chemical which makes the antioxidant more effective; Examples - citric acid, phosphoric acid

synovial - area where two bones meet and movement is required

synthetic - man made

syrup - mixture of sugar and water

Strength:

<u>Name</u>	<u>%</u>	<u>Sugar</u>	<u>Water</u>	<u>Will Make</u>
Thin	--	1-1/3 cups	4 cups	---
Medium	30	2 cups	4 cups	5 cups
Medium-Heavy	40	3 cups	4 cups	5½ cups
Heavy	50	4-3/4 cups	4 cups	6½ cups
Extra Heavy	60	7 cups	4 cups	7-3/4 cups

systemic insecticide - a pesticide that is absorbed into the plant or animal that it is protecting

systole - muscle contraction

Ta - see "tantalum"

tabanus (gadfly) - a genus of biting flies; (e.g., horse fly, gadfly, seroot)

tabasco sauce - pepper sauce made from capsicum berries

table d'hote - menu from which you cannot deviate without paying extra; a common table for guests; a complete meal

table salt - sodium chloride (NaCl)

tablespoon - a large spoon used at the table; 1/16th of a measuring cup

1 tablespoon = 3 teaspoons
 = 15 milliliters
 = 4 fluid drams
 = 2 dessert spoons

2 tablespoons = 1 fluid ounce

16 tablespoons = 1 cupful

32 tablespoons = 1 pint

64 tablespoons = 1 quart

256 tablespoons = 1 gallon

table wine - wine usually less than 14% alcohol served with food

tachyphagia - consuming food rapidly

tack - food

Taenia saginata - a parasite found in cattle; the life cycle takes it from ingestion by cattle to the duodenum, through the intestinal wall to the intramuscular connective tissue. As the meat is eaten by man, the tapeworm grows in the intestine to maturity. Thorough cooking of meat insures protection for man.

Taenia solium - a parasite found in hogs with a life cycle similar to the Taenia saginata found in cattle

taette - fermented milk

taffy - a confection made from brown sugar or molasses and pulled until porous and light colored

tafia - alcoholic drink made from sugar cane

tag - locks of wool covered with dung or mud; a young sheep

taginette - see "noodles"

tagliati - see "noodles"

tail bone - see "caudal vertebrae"

tailhead - attachment of the tail

tailless sheep - taillessness characteristic in sheep is a recessive trait

tail-tie - a tie on the tailhead

taleggio - a creamy, soft textured, snow-white Italian cheese; with a mellow, slightly piquant flavor

tallow - fats separated from connective tissue (particularly cattle and sheep) with a titer of 40°C or higher (usually up to 46°C)

37-43%	oleic acid
24-32%	palmitic
20-25%	stearic
3-6%	myristic
2-3%	linoleic

tallow beef - fat from beef tissue

0.862	specific gravity (99°/15.5°)
1.449 - 1.452	refractive index (60°C)
43 - 48°C	melting point
193 - 198	saponification number
35 - 45	iodine number

tallow (cutting) - tallow from retail store will yield:

58%	- tallow (fat)
22%	- moisture
20%	- meat scraps

tallow mutton - fat from mutton tissue

0.858 - 0.860	specific gravity (99°/15.5°)
1.451	refractive index (60°C)
44 - 47°C	melting point
192 - 195	saponification number
32 - 45	iodine number

tamal - see "tamale"

tamale (tamal) - corn, meat and oil cooked in a corn shuck (or paper)

tamara - a mixture of anise seed, cinnamon, cloves, coriander and fennel

tammy - strain through cloth

Tamworth - a bacon-type breed of hogs originating in central England. It is solid red in color, has an erect ear and a long body.

tanbark - shredded tree bark from which tannic acid has been extracted; see "tannic acid"

tangelo - hybrid cross between tangerine and grapefruit, is easy to peel

tangent - a trigonometric function

$$\text{tangent} = \frac{\text{ordinate}}{\text{abscissa}}$$

tangerine - a small dark skin orange, easy to peel, med. 2½ inch diameter, 4/pound

tankage - residue from rendering used for livestock feed and fertilizer; see "meat meal tankage"

tankard - a tall vessel with one handle used to hold a liquid for drinking

tanked - steam-pressure cooked

tannic acid ($C_{76}H_{52}O_{46}$) - occurs in bark of trees (extracted by leaching with H_2O) and used in the tanning industry to combine with the animal protein and convert it into leather;
Species of trees:

- | | |
|------------------------------|----------------|
| 1. American chestnut | 7. oak |
| 2. Chinese or Turkish nutgal | 8. quebracho |
| 3. gambier | 9. spruce |
| 4. hemlock | 10. sumac |
| 5. mangrove | 11. valonia |
| 6. myrobalan | 12. water bark |

tannin - found in plants and responsible for astringent taste of some foods (e.g., tea, nuts, apples); see "tannic acid"

tanning - the making of leather from hides by immersion in a tanning solution; see "tannic acid" and "chrome tanning"

tantalum (Ta) - an element; at.no. 73; at. wt. 180.95;
oxidation state +5; electron configuration 2-8-18-32-11-2
orbit K L M N O P

taotjo - a paste made from fermented soy products

tapa - salted, and sometimes spiced and sun-dried, beef and pork

tapeworms - see "Taenia saginata" and "Taenia solium"

tapioca flour - starch obtained from the root of a South American tropical woody plant called the cassava or manioc used in puddings and as a thickening agent; 3 cups = 1 pound; see "pearl tapioca" and "flake tapioca"

tare - weight of the container; fodder plant of vetch family; weed among corn

Targhee - a breed of sheep originated by USDA; these sheep carry about 3/4 Rambouillet blood and the remainder is Lincoln and Corriedale

tarragon (taragona) (estragon), (Artemisia dracunculus L.) - dark green leaves of an aster plant used as flavoring of food

tarsal bones - hind foot bones located above the metatarsal bones

tartare sauce - sauce used with seafood; mayonnaise, pickles and herbs

tartaric acid ($C_4H_6O_6$) - fruit acid

<u>% w/w</u> <u>at 15°C</u>	<u>d₄¹⁵</u>
1	1.0045
10	1.0469
20	1.0969
30	1.1505
40	1.2078
50	1.2696

taste (organoleptic) - sensory receptors located in the mouth;

	<u>Threshold Value</u> <u>g/100 ml</u>	
saline	0.25 NaCl	} 4 Taste categories
sweet	0.5 sugar	
sour	0.007 HCl 0.0002 vanilla (coumarin)	
bitter	0.00005 quinine	

taste-bud - receptor end-organ (9,000), located in mouth, for taste

taster - one who tastes; a device for sampling food or drink

tau (T, τ) - Greek letter with an English equivalent of t.

taxonomy - science that arranges and classifies plants and animals

Tb - see "terbium"

TB cattle - reacting to tuberculin test

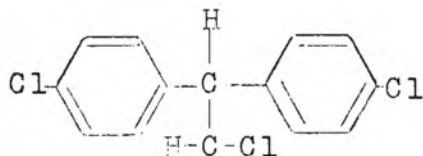
T-bone steak - steaks which have a T-shaped bone and are cut from the short loin; they are located between the porterhouse and club steaks

Tc - see "technetium"

TC - a symbol used on volumetric apparatus which means "To Contain"

ID - symbol used on volumetric apparatus which means "To Deliver"

TDE - a chlorinated organic insecticide



t-distribution - is a sampling distribution for samples less than 30; at 30 it approaches the normal distribution; it has a higher peak and tails than the normal distribution.

$t = 1.96$ ($n = \infty$) means that if a large sample was drawn from a normal population, 2.5% would have a t value greater than 1.96 and 2.5% would have a t value less than -1.96.

$$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

\bar{x} = estimation of mean
 μ = population mean or a hypothetical mean to be tested (e.g., difference in mean value $H_0: \mu=0$)
 s = estimation of standard deviation
 n = sample number (or number of pairs)
 $df = n-1$

One tailed test:

can be used when, by knowledge of the problem, values on one side of μ do not exist or have no meaning.

Using a 2 tail table - use $\frac{1}{2}$ of probability indicated in table; all of the factors are the same.

Randomized groups

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s_{\bar{x}_1 - \bar{x}_2}}$$

$$s_{\bar{x}_1 - \bar{x}_2} = \sqrt{2s^2/n}$$

$$H_0: \mu_1 - \mu_2 = 0$$

$$\text{pooled } s^2 = \frac{\text{pooled } \sum x^2}{2(n-1)}$$

n = # in one group

$df = 2(n-1)$

TDN - see "total digestible nutrients"

TDT - see "thermal death time"

Te - see "tellurium"

tea (Thea sinensis) - a low bush whose leaves are used to produce the beverage; processing includes: withering, rolling, fermentation, drying, sifting and grading

(cont'd on next page)

tea - (cont'd)Types:

black - leaves oxidized (fermented) before drying.

Flowering pekoe - highest quality - top leaf buds

Orange pekoe - next highest quality - first opened leaves

Pekoe - next highest quality - third leaves

Souchong - lower quality - next leaves

green - unoxidized (unfermented), heating the leaf early in processing to prevent fermentation; light in color, more tannin than black tea.

Tea contains: 2% caffeine - a stimulant
 6% ash
 10% water
 11% tannin - gives body
 33% extractives
 30-60% fiber

tea bag - one serving of tea in a cloth or fiber bag

teacup - a measure of volume usually less than 8 oz.

1 teacup = approx. 120 ml.

tease - to pull tissue apart

teaspoon - a measure of volume

1 teaspoon = approx. 3.5 - 4 milliliters

= approx. 1 to 1-1/3 fluid drams

= 1/3 tablespoon

= 1/48 cup

6 teaspoons = 1 fluid ounce

tech. - see "technical or commercial"

technetium (Tc) - an element; at. no. 43; mass number of most stable isotope 99; electron configuration 2-8-18-13-2

orbit K L M N O

oxidation states +4, +6, +7

technical or commercial - (tech.); a designation of a grade of chemical purity; this is the lowest chemical grade and is not refined for laboratory use;

Chemical grades according to decreasing purity:

1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

teeth (cattle) -

<u>age</u>	<u>teeth</u>
12 mo.	all calf teeth in
15 mo.	center incisors in
18 mo.	center incisors wearing
24 mo.	first intermediates through the gum
30 mo.	6 incisors in
36 mo.	6 incisors wearing
39 mo.	corners through the gum
42 mo.	8 incisors wearing

teff - cereal grain similar to millet

teflon - polytetrafluoroethylene; a chemically inert plastic material

tellurium (Te) - an element; at. no. 52; at. wt. 127.61;
electron configuration 2-8-18-18-6;
orbit K L M N O

oxidation states +4, +6, -2

telo- - end

tempeh - a fermented soybean product (can also be made from coconuts and peanuts)

temperature (rectal) -

animal	Rectum temperature			
	Av. F ^o	Range F ^o	Av. C ^o	Range C ^o
bird		105 - 107		40.6 - 41.7
cat		98.8 - 102.2		37.2 - 39
cattle	101.5	100 - 102.4	38.6	38 - 39
chicken		104 - 107.6		40 - 42
dog	101.5	101 - 102.5	39	38 - 39.1
goat	103		39.4	
guinea pig		101.3 - 103.8		38.5 - 39.9
horse	100.5		38	
man	98.6		37	
pig	102.6		39.2	
sheep	103	102 - 104	39.4	38.9 - 40.0

tempering - holding at a given temperature for a specific time to achieve stability of crystal form

tender (meat table) - internal temp. of at least 140°F

Tenderay Process - a process for tenderizing meat by aging it for a short time at high temperature; bacterial growth is kept down by using ultra-violet lights and shrinkage is reduced by using high humidity;

Example of possible conditions: Temp. 60°F
Humidity 85 to 90°
Time 3 days

tenderizer - an enzyme, or weak acid or salt used to tenderize meat

tenderloin - muscle located below the backbone; lower muscle in the short loin; see "psoas major"

tendon - connective tissue that attaches muscle to bone

Tennessee Walking Horse - 3 natural gaits of this breed -- flat-footed walk, running walk, canter

Tenox II - an antioxidant which contains:

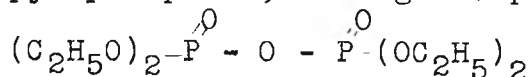
70 parts propylene glycol
6 parts propyl gallate
4 parts citric acid
20 parts butylated hydroxyanisole

Tensor fascia lata - a muscle of the thigh that runs from the ilium to the patella; in cross section of the round, it is the most cranial muscle

teosinte - an annual grass similar to Indian corn and is used for fodder

teou-fu - see "tofu"

TEPP - tetraethylpyrophosphate; an organic phosphorus insecticide;



tequila - distilled (90 to 100 proof) pulque (maguey juice)

tera- - (one trillion); (1,000,000,000,000); prefix for quantities larger than the base unit

terbium (Tb) - a rare earth element; at. no. 65; at. wt. 158.93; oxidation state +3; electron configuration 2-8-18-26-9-2
orbit K L M N O P

Teres major - a muscle of the chuck filling the angle between the scapula and the humerus; it lies medial to the Triceps; attached to the upper part of the humerus

termite - a white ant that burrows into wood;

soil treatment: $\frac{1}{2}\%$ chlordane
 $\frac{1}{2}\%$ dieldrin
 $\frac{1}{2}\%$ aldrin in water

terpene ($C_5H_8)_n$ - unsaturated hydrocarbons found in the essential oils of citrus fruits

terramycin - see "oxytetracycline"

territory wool - wool produced in Montana, Wash., Idaho, Wyoming, Utah, Nevada, Colorado, Western part of N. & S. Dakota, Nebraska and Kansas

testa - protective covering of seed embryo

testosterone ($C_{19}H_{28}O_2$) - a steroid androgen

tetra- - four

tetra pack - tetrahedral cartons used for milk & beverages

tetraphosphate - cleaning compound that has good calcium sequestering power; it is readily soluble in warm water but unstable at high temperature and high alkali; see "phosphate"

Texas hides - hides branded on rump or side that are plump and close-grained

Th - see "thorium"

thallium (Tl) - an element; at. no. 81; at. wt. 204.39;

electron configuration 2-8-18-32-18-3;

orbit K L M N O P

oxidation states +1, +3

thallus - a plant not differentiated into root, stem and leaf; i.e., seaweed, algae

thaw - to melt

theine - caffeine

theoretical plates (n)(gas chromatography) -

$$n = 16 \left(\frac{\text{retention volume}}{\text{peak width}} \right)^2$$

therm- - relating to heat

thermal capacity - amount of heat required to raise the temperature one degree C

thermal death point - the temperature required to kill bacteria in 10 minutes

thermal death time (TDT) - time required to completely sterilize a substance at a given temperature; also see "F - units" and "Fo - units" and "decimal reduction time"

thermo- - relating to heat

thermocouple - a thermoelectric instrument used to measure temp. by electromotive force; constructed of two wires of different metals; i.e., copper - constantan - 25.54 mv.

thermograph - an instrument to automatically record temperature

thermometer - an instrument used for measuring temperature usually by expansion of mercury or alcohol

thermophilic bacteria - bacteria that can grow at a high temperature; minimum growth temperature $+35^{\circ}\text{C}$ to 40°C ; optimum growth temperature 55 to 60°C ; maximum growth temperature 65 to 75°C

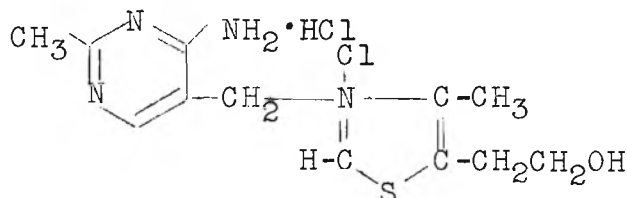
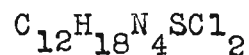
thermos - a vacuum bottle used for maintaining food or drink temperature

thermostat - an instrument to automatically regulate temperature

theta (Θ , θ) - Greek letter with an English equivalent of th.

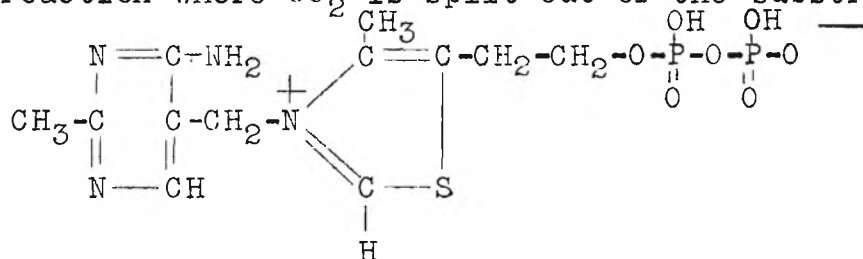
thiamin (vitamin B_1) (also thiamine) - a water soluble vitamin often known as vitamin B_1 ; it functions in carbohydrate metabolism and if deficient in the diet, the visible symptoms of beri-beri or polyneuritis develops; Source - Brewer's yeast, pork muscle, rice polishings, bran (of grains), fortified foods, peanuts, peas, lima beans and liver; 3 micrograms of pure vitamin - 1 international unit; functions - appetite promoting, growth and reproduction.

thiamin (hydrochloride)

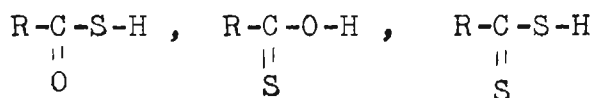


thiamine - see "thiamin"

thiamin pyrophosphate - a coenzyme which usually functions in a reaction where CO_2 is split out of the substrate



thio- - indicates presence of sulfur with a negative valence of 2; i.e.,



-thio- - I.U.C. center area of word used to describe
alkylthioalkane

thioalcohols - see "alkanethiol"

thiocyanate ion - CNS⁻

thioethers - R'-S-R; see "alkylthioalkane"

-thiol - I.U.C. ending for alkanethiol compounds

β-thiolalanine - see "cysteine"

Thompson - a variety of late Florida grapefruit

Thompson seedless - a variety of grapes

thoracic vertebrae - area of backbone to which ribs are attached;

beef	13
chicken	7
hog	14-15
lamb	12-14
rabbit	12

thorium (Th) - a rare earth element; at. no. 90; at. wt. 232.15;

electron configuration 2-8-18-32-19-9-2

orbit K L M N O P Q

oxidation state +4

thoroughbred - a breed of horses originating in England and
now widely distributed; does not apply to other animals

thoroughly cooked - see "smoked temperatures"

thoroughpin - a swelling in the back and top of the hock of a
horse

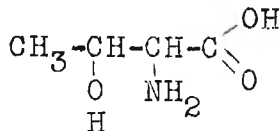
thousand (M) - 1,000

thousand island dressing - dressing made from mayonnaise, chili
sauce, eggs, pepper, pickles and seasoning

thrash - to separate grain or seed from straw

three-gaited horse - 3 natural gaits: walk, trot, canter

threonine - an essential monoamino - monocarboxylic - monohydroxy
amino acid



threpsis - nutrition

threshold - a level below which there is no response to a
stimulus

thrips - an insect with the following characteristics:

less than 1/8 in. long
wings
slender bodies
yellow, orange or black;

Suck sap from leaves and buds and cause leaves to curl upward; Control: aldrin, BHC, dieldrin, endrin, guthion, heptachlor, malathion, methyl parathion, or toxaphene

throatlatch - where the throat joins the jaw

thrombin - fibrin of blood

through stock - not offered for sale

thulium (Tm) - a rare earth element; at. no. 69; at. wt. 168.94;

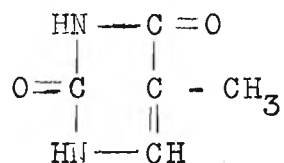
electron configuration 2-8-18-31-8-2
orbit K L M N O P

oxidation state +3

thuringer - A finely chopped German summer (Semi-dry) sausage containing mostly beef and some pork with heavy smoke; a summer sausage containing beef that is never warmed above 95-110°F and retains most of the nutritive properties of the raw product; contains lactobacilli bacteria

thyme (Thymus vulgaris L.) - gray green dried leaves (1/4 inch in length) and flowering tops of a plant of the mint family used as an herb; more than 60 known types; may be in whole or ground form; not more than 14% total ash; not more than 4% acid insoluble ash

thymine - a constituent (pyrimidine base) of nucleic acid



thymol blue $\text{C}_{27}\text{H}_{30}\text{O}_5\text{S}$ - a pH indicator that is red below

a pH of 1, yellow between 1 and 9, and blue above 10

thymol phthalein $\text{C}_{28}\text{H}_{30}\text{O}_4$ - a pH indicator that is colorless

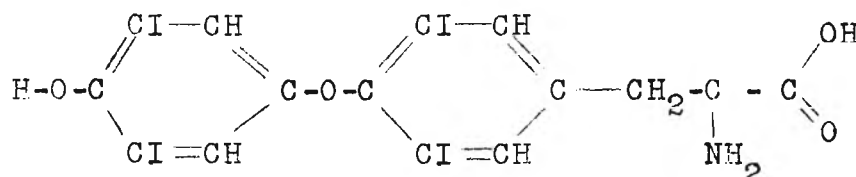
below a pH of 9 and blue above a pH of 10

thymus - a cream colored lobed and ductless gland located in the neck near the chest; in the young it inhibits the activity of the sex glands and it atrophies after puberty; see "sweetbread"

thyroid gland - a dark colored ductless gland located on both sides of the windpipe and below the larynx; a deficiency of iodine will cause goitre

thyroxin (thyroxine) - an iodine-containing compound secreted from the thyroid gland that controls the rate of metabolism; see "thyroxine"

thyroxine (thyroxin) - an iodine-containing amino acid



see "thyroxin"

Ti - see "titanium"

tibia - large hind shank bone that articulates with the femur; larger than its sometimes parallel partner the fibula

tie - a depression in the back of cattle caused by the attachment of the hide to the backbone

tiffin - eating between regular meals

tikitiki - rice polishings

til - sesame seed

tillage - keeping free of weeds

tilsit - a mild semi-hard Danish cheese

timothy (Phleum pratense) - a grass with long cylindrical spikes used for hay; 45 lbs./bushel; plant 5 lbs./acre;

approx. nutrient used for 1 ton hay: 20 lbs. N
6 lbs. P₂O₅
27 lbs. K₂O

tin (Sn) - an element; at. no. 50; at. wt. 118.70;

electron configuration 2-8-18-18-4
orbit K L M N O

oxidation states +2, +4

tin can - mild steel plate with a thin (1.5% of total) coat of pure tin; tin resists corrosion in the absence of oxygen; sealing compound - rubber (or synthetic rubber) in benzol, dusted with asbestos powder; solder - 2% tin and 98% lead solder (evaporated milk cans - 30% tin and 70% lead solder).

- tin foil - a thin sheet of tin, tin-lead alloy, tin alloy, or aluminum
- tintometer - instrument for measuring color by comparison with colored glass or standard solutions
- tip - see "knuckle"
- tip-dyed fur - furs in which only the surface hair is dyed
- tire - rim on a wheel; solution used for adding weight to tires of heavy equipment is calcium chloride; will not freeze down to -51°F
- tissue - a group of similar cells that perform a particular function
- tissue culture - technique of maintaining parts of animal or plant tissue alive after removal from the organism
- titanium (Ti) - an element; at. no. 22; at. wt. 47.90;
electron configuration 2-8-10-2
orbit K L M N
oxidation states +2, +3, +4
- titanium dioxide (TiO_2) - white pigment
- titer - the amount of substance A that will correspond to a given amount of substance B; is the solidification point of fatty acids that have been saponified
- titration - is the operation of determining the concentration of a given volume of solution by reacting it with a measured volume of a known concentration solution in the presence of an indicator
- Tl - see "thallium"
- Tm - see "thulium"
- tn - ton
- TNT - see "trinitrotoluene"
- toast - brown by direct heat; proposed honor offered prior to drinking
- tobacco (Nicotiana) - leaves of plant used to make smoking, chewing tobacco and snuff; types: burley, aromatic, flue-cured; a hogshhead of burley = approx. 950 lbs.
- tobacco beds - 1 oz. (3 level tablespoonsful) seed / sq. yds. enough for 3-6 acres;
Weed control methods:
- (1) 9 lbs. methyl bromide/100 sq. yds
use gas tight cover
keep on for 24-48 hrs
soil dry and temperature above 50°F
 - (2) 1 lb. of granular calcium cyanamid/sq.yd
60-90 days before seeding
 - (3) 1 lb. fertilizer urea and $\frac{1}{2}$ lb. cyanamid/sq.yd
60-90 days before seeding
 - (4) 6 quarts allyl alcohol in 100 gal. water/100 sq.yds
at least 14 days before seeding; 50°F or above
 - (5) burning
 - (6) steaming

tobacco stems - fertilizer equivalent; 2 - 0.6 - 6.8

tobasco sauce - fermented tobasco peppers and vinegar

tocol - precursor of vitamin E

tocopherol (vitamin E) - an antioxidant (γ better than α)

found naturally in vegetable oil that retards the development of rancidity; added at the rate of .03% to fat; see "alpha tocopherol"

tod - a measure of weight; 1 tod = 28 pounds

toddy - fermented drink made from palm juice; hot tea containing liquor

toffy - see "toffee"

toffee (toffy) - a butter, sugar, milk candy; similar to caramels but cooked at higher temperatures

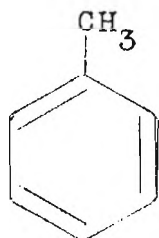
tofu (teou-fu) - (soy cheese, soybean curd); a fermented soybean product resembling cottage cheese; kori todou or koya dofu - frozen and dried tofu; aburage - french fried tofu; namage - surface dried tofu; sufu or to-sufu - tofu on which a special mucor mold is grown

tofukasu - food made from beans

tokay - a variety of white grapes; a golden dessert wine made from these grapes

toke - dry bread

toluene - a liquid aromatic hydrocarbon of the benzene series



tomato (Lycopersicum esculentum) - a vegetable whose fruit is used as food; 54-56 lbs. per bushel; 75-90 days to maturity; 0.027 tons of fresh tomatoes equal 1 case (24 #2 cans) of canned tomatoes; seed 2 oz./acre; spacing - 2 feet in 4 foot rows; approx. 3 med. size/pound; Composition: 1.1% protein and 0.3% fat

tomato ketchup - tomato sauce containing vinegar, sugar, salt and spice

toms (young) - male turkeys before they become "staggy", usually under 1 year old

ton - gross-long (2,240 lb.) - a measure of weight

1 ton (2,240 lb.) = 15,680,000 grains (gr.)
 = 1.016×10^6 grams
 = 35,840 avoir ounces (oz. av.)
 = 32,666.7 troy ounces (oz. t.)(ap.)
 = 2,722.22 troy pounds (lb. t.)(ap.)
 = 2,240 avoir pounds (lb. av.)
 = 1,016.05 kilograms (kg)
 = 1.12 net-short tons (2,000 lb.)
 = 1.01605 metric tons (1,000 kg)

ton - metric (1,000 kg)(t) - a measure of weight

1 ton (1,000 kg) = 15,432,356 grains (gr.)
 = 35,274.0 avoir ounces (oz. av.)
 = 32,150.7 troy ounces (oz. t.)
 = 2,679.23 troy pounds (lb. t.)
 = 2,204.62 avoir pounds (lb. av.)
 = 1,000 kilograms (kg); 10^3 kg.
 = 1.10231 net-short tons (2,000 lb.)
 = 1 cubic meter water at 4°C
 = 0.98421 gross-long tons (2,240 lb.)

ton - net short (2,000 lb.)(tn) - a measure of weight

1 ton (2,000 lb.) = 14,000,000 grains (gr.)
 = 9.072×10^5 grams
 = 32,000 avoir ounces (oz. av.)
 = 29,166.7 troy ounces (oz. t.)(ap.)
 = 2,430.56 troy pounds (lb. t.)(ap.)
 = 2,000 avoir pounds (lb. av.)
 = 907.185 kilograms (kg)
 = 20 hundredweights (cwt)(avoir)
 = 0.90719 metric tons (1,000 kg.)
 = 0.89286 gross-long tons (2,240 lb.)

The quantity of
 1 ton = 8 sacks of flour
 = 10 barrels of flour
 = 10 to 36 bushels potatoes
 = 20 bushels of wheat

ton of water/24 hrs. - measure of a rate of flow

1 ton of water/24 hrs. = 83.33 pounds/hr.
 = 0.166 gallon /min.
 = 1.335 cu.ft./hr.

ton, refrigeration - the heat required to melt 2,000 pounds ice at 32°F; 288,000 B.t.u.

tonneau - a measure of wine volume; 1 tonneau = approx. 200 gal.

top - the extreme - high price of the market

top chuck - when a beef chuck is divided along the blade bone, the outside area is top chuck; see "outside chuck"

topy - commands the top of the market

top round (semimembranosus) - is the inside muscle of the round and a more tender cut than the eye or bottom round muscles; see "inside round"

top sirloin (sirloin tip) - ventral muscles of the sirloin and includes Tensor fasciae latae, Vastus medialis, Rectus femoris, and Vastus lateralis

top soil - top layer or surface of soil; contains more organic matter

top syrup - syrup obtained by concentrating the entire juice of sugar cane

tor - see "torr"

toraphene - insecticide $C_{10}H_{10}Cl_8$

torfu - food prepared from soy bean

tori seed oil - oil extracted from mustard seed

torr, tor - international term very close to "millimeter of mercury";

1 torr = 1/760 standard atmosphere
 = 1,013,250/760 dyne/cm²
 = 1333.22 microbars

torte - a round cake made with eggs and sugar and sometimes covered with frosting

tortillas - a circular cake made from corn

toss - mix

to-sufu - see "tofu"

total digestible nutrients (TDN) - sum of protein, fiber, NFE and fat ($2\frac{1}{4}$) and represents approximate heat or energy value

total nitrogen - see "Kjeldahl determination"

toxaphene - a poisonous insecticide; approx. formula $C_{10}H_{10}Cl_8$

toxin - poisonous albumin produced by microorganisms

TPN - see "triphosphopyridine nucleotide"

trace - a small and barely detectable quantity; less than
 5×10^{-6} g/g

trace elements - mineral salts needed by the body in very small amounts

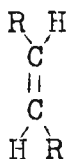
trademark - a distinguishing mark placed on goods and if registered is protected by law

tragacanth (gum dragon) - see "gum tragacanth"

training table - a table with meals planned to aid athletes in their conditioning program

train oil - oil produced from sea animals (i.e., whale)

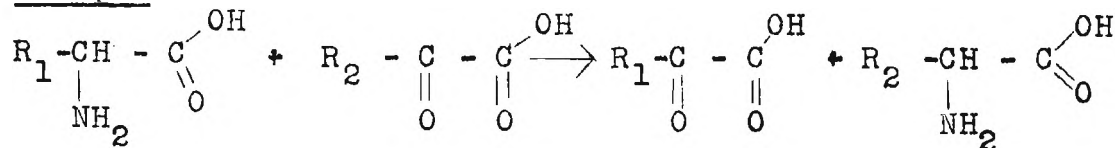
trans - across; the following chemical configuration



transaminase - the enzyme responsible for transamination

transamination - transfer of amino group (-NH₂) from one compound to another

Example



transformer - an electrical device used to change the voltage of A.C. power and contains 2 coils; when current is applied to the primary coil it generates a magnetic field which produces a current in the secondary coil

transparent - permitting the passage of light; see "yellow transparent"

transplant - to plant in another place

transverse plane - crosswise; right angle to long axis; ribbed carcass into fore and hind quarters

transverse process - lateral projection on vertebra

Trapezius muscle - attached to the lateral surface of the scapula and to the thoracic spinous processes

trawl - a long line with hooks or net used in deep sea fishing

tree - a perennial plant having a main stem and branches

tree molasses - maple syrup

tree sugar - maple sugar

trefoil (big trefoil) - a shallow rooted perennial grass used in wet soil; seeding 60 lbs./bu; 2-3 lbs./acre; variety - Columbia

trenette - see "spaghetti"

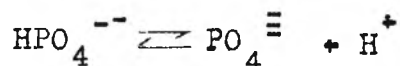
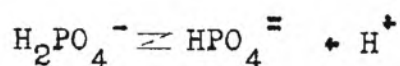
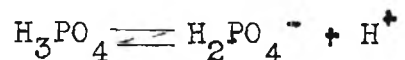
trepha - opposite of kosher

tri- - three

triangle - a 3-sided figure; see "rattle"

tribasic acid - acid with 3 replaceable hydrogens;

Examples:



tricarboxylic acid cycle - citric acid cycle

triceps - three headed; muscle that extends the fore limb; see "Triceps brachii"

Triceps brachii - a large muscle of the chuck filling the angle between the scapula and the humerus; it is attached to the head of the ulna

trichina (sing.), trichinae (pl.), Trichinella - parasite found in pork and other animal tissue; see "Trichinella spiralis" and "trichina destruction"

trichina destruction - recommended techniques for destroying trichina

Heating: 137°F;

Refrigerating:

Max. temp. F	Meat samples (separated & not over 6 in. in thickness)	Meat samples (6-27 in. in thickness & separated)
5	20 days	30
-10	10	20
-20	6	12

(cont'd on next page)

trichina destruction - Curing:

Method	Max. diam. -meat	Min. lb. salt/100 lb. fresh	Holding time		Max. diam. - in.	Drying room		Smoking		Min. total Days in cure	
			Min. time	Min. temp.		Min. days	Min. temp.	Min. time	Min. temp.	time	Min. temp.
1	3/4 in.	3-1/3			3 1/2	20	45°F			25	
					1-3/8	15	45°F			20	
					3 1/2-4	35	45°F			40	
2	3/4 in.	3-1/3			3 1/2	10	45°F	40 hrs.	80°F	18	
					3 1/2-4	25	45°F	40 hrs.	80°F	33	
3	3/4 in.	3-1/3	36 hrs.	34°F	3 1/2			12 hrs.	90°F	144 hrs.	34°F
								4 - cont. hrs.	128°F		
								15 hrs.	90°F		
								7 - cont. hrs.	128°F		
			50° pickle	44°F	3 1/2-4		4 hrs. to obtain	128°F			
4	1/4 in.	2 1/2	6 inches in depth		3 1/2			3 hrs. water bath	85°F	35 days	45°F
								or Smoke	80°F		
5	3/4 in.	3-1/3				65 days	45°F	Coat with paraffin			

(cont'd on next page)

F

Method	Min. lb. salt/100 lb. fresh	Holding time		Max. diam. - in.	Drying room		Smoking		Min. total Days in cure	
		Min. time	Min. temp.		Min. days	Min. temp.	Min. time	Min. temp.	time	Min. temp.
capocollo boneless Boston butts	4½	25 days	36°F	washed	20	45°F	30 hrs.	80°F		
coppa boneless Boston butts	4½	13 days	36°F		35	45°F				
<u>Hams:</u>										
1	4 + overhaul	40 days	36°F	washed			10 days	95°F		
2	4 + 8 oz. 100° pickle + overhaul	3 days per lb. green wt.	36°F	washed	20	45°F	48 hrs.	80°F		
<u>Boneless loins:</u>										
1	5	25 days	36°F	washed			12 hrs.	100°F		
2	80 ^h pickle 60 lbs. pickle/100 lbs.	25 days	36°F		4 hrs. con't			125°F	12 days	45°F
3	#1 + #2	25 days	36°F							

trichinae - see "trichina"

trichinella - see "trichina"

Trichinella spiralis - a parasite found in the skeletal muscle fibers of swine, bear, walrus, cat, dog, the rodent family and man; heating to 137°F will kill this parasite

trichinoscope - an instrument used in the inspection of meat for trichina

trichinosis - an infection caused by the parasite Trichinella spiralis

trichloroacetic - CCl_3COOH ; a chemical used to precipitate protein

tricho- - resembling a hair

tricuspid valve - heart valve which allows one way flow of blood from the right auricle to the right ventricle

trier - a long flat stainless steel instrument used to inspect the internal area of meat for off-odors

triethylamine - $\text{N}(\text{C}_2\text{H}_5)_3$; odor of decaying fish

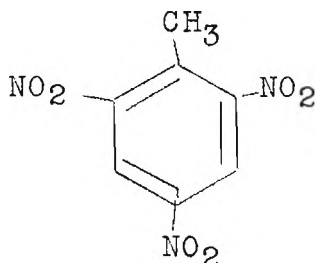
triglyceride - glycerol esterified with three molecules of an acid

trillion - American & French 10^{12}
English & German 10^{18}

trimmed lambs - tails have been cut; also, unsexed male lambs

tri-nitro benzene - an indicator which is colorless below a pH of 12, orange from 12 to 13, and red-orange above 13

trinitrotoluene (TNT) - an explosive



triose - $\text{C}_3\text{H}_6\text{O}_3$; a 3-carbon sugar

tripe - cleaned, scalded and cooked 1st and 2nd stomach (with the inside wall removed) from healthy cattle;

Kinds: (depends on part of stomach used)

- blanket
- honeycomb
- book
- monk's hood
- reed

tripeptide - combination of 3 amino acids joined by 2 peptide bonds

triphosphopyridine nucleotide (TPN) - this coenzyme differs from coenzyme 1 (DPN) only in having one more phosphoric radical in the molecule; used by the cell in many oxidation reactions

tripolyphosphate - cleaning compound that has good calcium sequestering power; it is readily soluble in warm water but unstable at high temp. or in solutions high in alkali; see "phosphate"

trisodium phosphate - an alkaline cleaner that has good solubility, deflocculating and emulsifying properties; it is a fair water softener and fairly corrosive

triumph - a variety of potato (white) which is best used in salads; a dry mealy variety of sweet potato

tropical - 23° 27' north to south of the equator

trotter - lamb shank

troy - U.S. & English weight used for gold and silver; based on a pound that contains 12 ounces

truck farm - land used for raising garden produce

true stomach - see "abomasum"

truffle - edible fungi; black or perigord - Tuber melanospermum; white - T. album or T. niveum;

composition: 75% H₂O, 9% protein, 0.3% fat

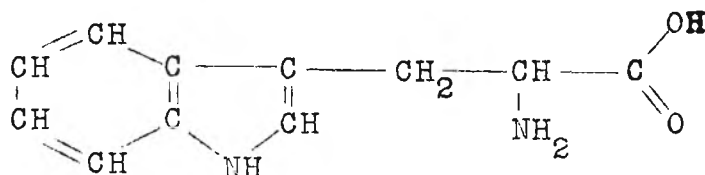
truss - tie to hold shape during cooking

trypsin - a proteolytic enzyme which attacks native proteins, breaks them into polypeptides and amino acids, and is found in the pancreatic juice in the small intestine; it is secreted in the inactive form called trypsinogen

trypsinogen - inactive form of trypsin and the form in which trypsin is secreted; it is initially activated by enterokinase after which time activation proceeds through the action of trypsin

tryptophan - see "tryptophane"

tryptophane (tryptophan) - a heterocyclic amino acid



TSH - thyroid-stimulating hormone

T.T. - tuberculin tested

t-table - to get a 1 tail value from a 2 tail table, multiply α (prob.) by 2 and look this ($\alpha \times 2$) up in a 2 tail table.

To get a 2 tail value from a 1 tail table, divide α by 2 and look this up in a 1 tail table

tuber - swelling on subterranean stem or root; usually starchy

tuberculosis - a communicable disease found in cattle, hogs and chickens; it can be detected by the tuberculin test

tubetti - see "macaroni"

tubi- - tube

tuck - sweets

tucket - steak; small green ear of corn

tularemia - an infectious disease of wild rabbits and is communicable to man

tumbler - large glass

tun - a wine measure

1 tun = 252 gallons (U.S.)
= 210 gallons (Imperial)

tung oil - China wood oil; a pale yellow oil from nuts of Aleurites cordata and A. fordii used in finishing wood; 0.94 density; 168 iodine number; 194 saponification number

tungsten (W)(wolfram) - an element; at. no. 74; at. wt. 183.86; electron configuration 2-8-18-32-12-2
orbit K L M N O P

oxidation state +6

Tunis - a fat-tailed breed of sheep originating in Northern Africa

tunol - cod liver oil

tup hog - see "hogget"

turbary - land where sod or peat is obtained

turbidimetric analysis - an optical analysis in which concentration is determined by the intensity of light transmitted through a turbid solution as compared with that of a standard suspension

tureen - deep dish

turkey (Meleagris gallo-pavo) - a large American bird that has been domesticated; $\frac{1}{2}$ pound ready-to-cook bird = 1 serving; dressing percentage 80

turkey cock - male turkey

turkey grade - see "poultry grades"

turkey hen - female turkey

Turkey test - see "means test"

Turkish coffee - a sweetened drink made from pulverized coffee
Turkish delight, (Turkish paste) - a chewy confection dusted with sugar

Turkish paste - see "Turkish delight"

turmeric (Curcuma longa L.) - rhizome of a perennial plant used as food, in flavoring food and as a yellow dye; used in curry powder and mustard

turnip (Brassica campestris) - a vegetable whose root is used as food; 1 bu. = 54 lbs.; composition: 0.8% protein, 0% fat, 4% carbohydrate

turpentine - an oleoresinous material from the Pinus species of trees; used as a solvent; B.P. 155-165°C; 1 barrel = 432 lbs.; 1 gallon = 7.2 lbs.

tutti-frutti - ice cream containing fruit

tweens - a series of emulsifiers, detergents, and surface active agents

two-toned beef - meat tissue where neighboring muscles or areas of one muscle are of different shades

two-year-old - an ovine animal (sheep) from 2 to 3 years of age

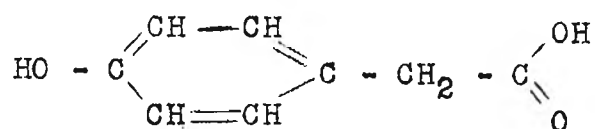
type I error - rejected a true hypothesis

type II error - accepted a false hypothesis

tyro- - cheese

tyrosinase - an oxidase enzyme which is widely distributed and is the one responsible for the darkening of the cut surface of a potato which has been exposed to air; oxidizes tyrosine to homogentisic acid and melanin pigments

tyrosine - an aromatic amino acid



U - see "uranium"

udo - a salad of crisp blanched stems eaten with salt

ugli - hybrid between grapefruit and tangerine; it looks like and is used like a small grapefruit; see "tangelos"

ulna - caudal of 2 bones in fore shank; ruminants - smaller than radius and often fused to it; swine - often larger than the radius and not fused to it

ultra- - outside specified limits

ultrasonic - high frequency sound waves of approximately 200,000 cps

ultraviolet - wavelength of radiation (approx. 1850 Å to 4,000 Å) shorter than visible violet and longer than X-rays; most effective germicidal wavelength is 2600 Å

umbelliferae - parsley family

un- - not

unchanged - prices same as for previous period

underfed - supplied with too little food

undershot - water passing under

undrawn poultry - dressed poultry which has been picked but has not had the entrails removed

undulant fever - human brucellosis; contracted from animals or animal products

unequal to - not equal to; \neq

uneven market - see "market uneven"

uni- - one; single

unit cell - smallest group of atoms having the same composition and arrangement in space that can be selected in a crystal

univalent - having a valence of one

unpolished rice - whole rice grain with just the husk removed

unripe - immature

unsaponifiable matter analysis - is determined by saponifying the fat with alcoholic potassium hydroxide and then extracting the unsaponifiable matter with ether, evaporating the ether and the residue is unsaponifiable matter

unsaturated fatty acids - fatty acids containing some carbon atoms joined together by double bonds;
$$\text{R}-\underset{\text{H}}{\text{C}}=\underset{\text{H}}{\text{C}}-\underset{\text{O}}{\overset{\text{OH}}{\text{C}}}$$

they have a lower melting point and are softer than saturated acids of the same chain length

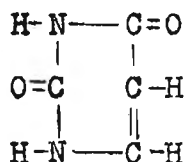
unsweetened chocolate - chocolate sold in bar shaped package containing 1 ounce squares or in a liquid form; flavor is deep, rich and bitter; 1 square = 1 envelope of liquid = $\frac{1}{4}$ cup dry cocoa powder

upland cress - see "garden cress"

upside-down cake - a cake baked with batter above fruit and turned over for serving

upsilon (Υ, Υ) - Greek letter with an English equivalent of u.

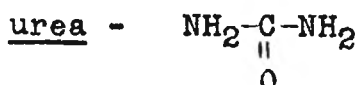
uracil - biochemical compound used in research and obtained by hydrolysis of nucleic acids



uranium (U) - a rare earth element; at. no. 92; at. wt. 238.07;

electron configuration 2-8-18-32-21-9-2
orbit K L M N O P Q

oxidation states +3, +4, +5, +6



is the chief excretory nitrogen product in mammals, amphibia and fish; has weak basic properties

urea (feed) - can be utilized by ruminant animals; 3 lbs. to 100 lbs. grain is maximum; 1 lb. urea + 6 lbs. ground corn = in feeding value to 7 lbs. oil meal

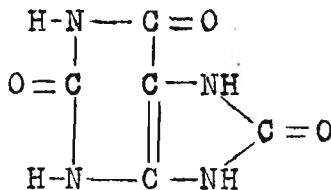
urea (fertilizer) - a material which can be used as fertilizer;

$\text{CO}(\text{NH}_2)_2$; 45-0-0; hydrolyzes to ammonium in soil;

it is acid in nature and would require .75 lbs. of dolomitic limestone to neutralize each pound applied

urease - an enzyme that converts urea to ammonia and carbon dioxide; source - soybeans

uric acid - is the chief excretory nitrogen product in birds and reptiles



U.S.P. - see "U.S. pharmacopeia"

U.S. pharmacopeia - U.S.P. grade; a designation of a grade of chemical purity that meets specifications of the United States pharmacopeia;

chemical grades according to decreasing purity:

1. Primary Standards
2. Spectro Grade
3. Reagent
4. A.C.S.
5. Chemically Pure
6. U.S.P.
7. N.F.
8. Purified
9. Technical or Commercial

U.S.P. units - United States pharmacopeia units

UV - ultraviolet

V - see "vanadium", "volt"

vacuole - cavity or fluid-filled space in a cell

vacuum - a space from which the air has been removed

vacuum-packed - removing air before hermetically sealing

valence - combining power of an atom or group of atoms;

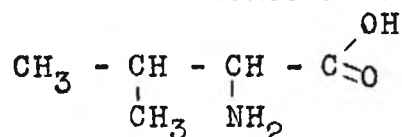
number of hydrogen atoms it can combine with or replace

Valencia - a variety of Calif. orange that is oblong in shape;

in season from May to November; a variety of late Florida

orange that is often used in frozen concentrate

valine - monoamino-monocarboxylic essential amino acid



valpolicella - light red wine

vanadium (V) - an element; at. no. 23; at. wt. 50.95;

electron configuration 2-8-11-2 ;

orbit K L M N

oxidation states +2, +3, +4, +5

vanaspati - hydrogenated vegetable oil

vanilla - (Vanilla planifolia and V. aromatica); bean or

alcoholic extract used as flavoring of food;

pod curing: 1. dipping in boiling water

2. slow drying (black in color)

3. packed in foil lined boxes

vanillin (2-3%) - main flavoring component; 2 tablespoons
of extract = 1 ounce

vanilla extract - made by chopping beans of Vanilla planifolia

or V. fragrans or V. aromatica in 50% alcohol and sub-

sequent percolation; in 100 cc must be the soluble matter

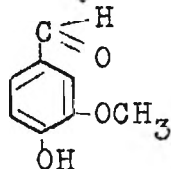
from at least 10 g of vanilla bean; 0.10 - 0.35% vanillin

0.20 - 0.43% ash

vanilla wafers - a cookie; 1 cup = 20 coarsely crumbled

= 30 finely crumbled

vanillin - primary flavoring ingredient in vanilla;



1 part vanillin = 400 parts vanilla pods

2-3 " " = 500 parts tincture vanilla;

see "vanilla"

vaporization point - temperature at which a liquid turns to a vapor; see "boiling point"

vapor pressure - gas pressure exerted by the evaporation of molecules from a liquid at a given temperature; when the vapor pressure reaches the atmospheric pressure the liquid boils

varec. (kelp) - ash obtained from a seaweed from which iodine is extracted

variance (σ^2) - variation of observations; it is the square of the standard deviation estimation; estimated by mean square

variety meat - edible organs and glands

Examples:

1. brain
2. heart
3. kidney
4. liver
5. pancreas
6. spleen
7. tongue
8. thymus
9. walls of stomach

storage: coldest part of refrigerator; use within 1 to 2 days

vaseline - a trade name for a purified mixture of hydrocarbons distilled from petroleum

vaso- - vessel; duct

Vastus intermedius - see "quadriceps"

Vastus lateralis - see "quadriceps"

Vastus medialis - see "quadriceps"

veal - young bovine flesh from 3 to 14 weeks old at slaughter; flesh is light in color and contains little marbling; high in moisture

veal back - a wholesale cut of veal from the 4th rib to the hip bone

veal chuck - a wholesale cut of veal consisting of all in front of the 4th rib; sides may be split or unsplit

veal cutlets - veal round steak

veal leg - a wholesale cut of veal consisting of the area to the rear of the hip; sides may be split or unsplit

veal rib back - a wholesale cut of veal consisting of the unsplit ribs (4th through 12th rib)

veal shoulder - see "veal chuck"

vegans - strict vegetarian diet

vegetable - a plant used for culinary purposes or feeding livestock

vegetable gelatin - see "agar-agar"

vegetable grade - see "fruit grade"

- vegetable marrow - a summer variety of squash; see "marrows"
- vegetable oil - oil obtained from plants and used as food and for cooking; 440-460°F smoke point for hydrogenated oil
- vegetable oyster - see "salsify"
- vegetable seed - kernel of plant that can be sowed to reproduce the plant; storage: 32-40°F
50-65% R.H.
- vegetable shortening - fat from plants used for cooking; 420-440°F smoke point
- vegetarian - a person who does not eat any animal food and consumes only products of the vegetable kingdom; others will eat butter, eggs and milk
- vein - a blood vessel that carries blood toward the heart
- veitchberry - similar to loganberry
- vellum - fine parchment made from calf skin, paper, or cotton
- velvet bean - an annual legume used for animal feed and green manure; 1.8 lbs./qt.; 60 lbs./bu.; Varieties: bunch
osceola
speckle
- velvet bean caterpillar - a worm which eats the top leaves of soybean plants; control: DDT, toxaphene
- velvet spirit - see "silent spirit"
- veneer - thin wood usually 1/28 inch in thickness
- venison - flesh of deer
- veno- - vein
- ventral - belly
- ventricle - lower chambers of the heart called right and left
ventricle
- verjuice - acid juice from crab apples or unripe grapes used as a drink or for culinary purposes
- vermicelli - not tubular and not more than .06 inch in diameter; see "spaghetti"
- vermouth - (vermuth); an alcoholic beverage; wine base; sweetened with sugar syrup (3-20% sugar); fortified with brandy; flavored with aromatic herbs; 14-20% alcohol by volume
- vernier - an auxiliary scale used to obtain fine adjustment or measurement

<u>vertebrae</u> - bones of spinal column	<u>cervical</u>	<u>thoracic</u>	<u>lumbar</u>	<u>sacral</u>	<u>coccygeal or caudal</u>
cattle	7	13	6	5	18-20
sheep	7	13	6-7	4-5	16-20
goats	7	13	6	5	18-20
camel	7	12	7	4	15-18
deer	7	13-14	6	5	18-20
horse	7	18	6	5	18-20
pig	7	14-16	6-7	4	14-23
rabbit	7	12	7	3	7

- vetch - an annual leguminous grass; seeding 60 lbs./bu.,
25 lbs./acre; varieties: common, hairy
- vial - small bottle
- vibrionic abortion - see "vibriosis"
- vibriosis - a germ causing abortion during first 6 months of
gestation
- viceroy - a coach; see "hackney"
- victus - diet; food
- vicugna (vicuna) - a ruminant animal similar to the llama that
measures about $2\frac{1}{2}$ feet to the shoulder and native to South
America
- vidonia - a tart white wine
- Vienna sausage - see "frankfurter"
- viking - a variety of birdsfoot trefoil
- vinaigrous - sour
- vinasse - residue of beet sugar or wine manufacturing
- vinegar - in U.S. means only cider vinegar; a sour solution pro-
duced by exposing an alcoholic liquid to air. A surface
film appears and the alcohol is oxidized to acetic acid
by Acetobacter organisms. Film is a viscous gelatinous
Zooglea containing a large number of organisms. Dilute
acetic acid solution (3.24 to 9.96 g/100 ml); made from
fruit or grain; min. 4% by wt. of absolute acetic acid;
made by double fermentation; see: "apple vinegar", "grape
vinegar", "malt vinegar", "distilled vinegar", "fermented
vinegar", "acetic acid", "grain (vinegar)", "mother of vinegar"
Types: (a) cider, (b) wine, From distilled grain alcohol -
(c) malt, (d) sugar, (e) glucose, (f) spirit.
Composition: 94-95% H₂O, trace protein, 0% fat, 5-6% car-
bohydrate, 0.3% ash; pH 2-3.4
- vinometer - an instrument used to measure alcohol in wine
- vintage - fruit or wine of any given season
- vinyl - the CH₂=CH⁻ radical
- vinylidene chloride - film used in heat-shrinkable bags and
used as an O₂-barrier in laminates
- Virginia ham - see "Smithfield ham"
- virgin olive oil - edible olive oil made from hand picked ripe
olives and extracted by using moderate pressure
- virgin wool - wool that has never been used in fabrics
- viscera - the internal organs of slaughtered animals
- visceral - internal organs of the body cavity
- visceral muscle - involuntary, non-striated muscle of the in-
testinal tract type
- viscogen - a mixture of lime (CaO), sugar and water used as a
thickening agent for whipping cream

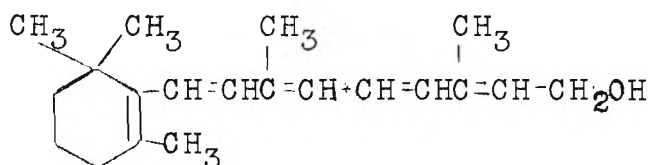
viscometer - instrument to measure viscosity

viscosity - a measure of the tendency for relative motion within a fluid

viscous - sticky; gummy

vitamin - organic compounds that are necessary in the diet but are required only in minute amounts for normal functioning of the body

vitamin A - (retinol); $C_{20}H_{29}OH$; a fat soluble vitamin; a high molecular weight alcohol; physiological function; growth promoting, prevents drying of mucous membranes, essential to reproduction, plays a role in night vision; young mammals are born with limited amounts of vitamin A



Sources:

fish liver oil
milk & milk products
egg yolk
liver
green & yellow vegetables
oranges
peaches
sweet potatoes
tomatoes

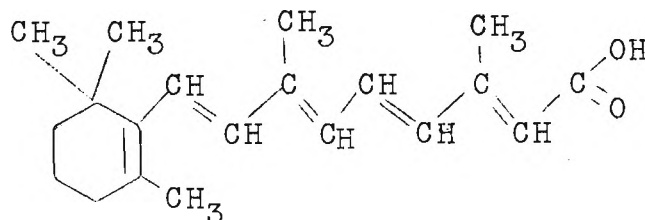
Poor Sources:

cereal grain with the exception of yellow corn

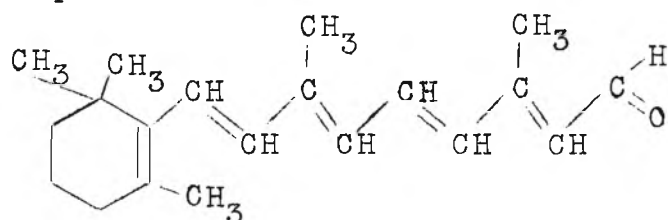
It usually occurs in nature as a provitamin in the form of α , β , γ , carotene or cryptoxanthin which is converted in the animal body to vitamin A

1 mg of carotene = 400 I.U. of vitamin A

vitamin A acid - an acid group replacing the alcohol group on the common vitamin A formula



vitamin A aldehyde - an aldehyde group replacing the alcohol group on the common vitamin A formula



vitamin B - a member of vitamin B complex; water soluble vitamins:
thiamin, riboflavin, pyridoxine, nicotinic acid, B₁₂

vitamin B₁ (F) - see "thiamin"

vitamin B₂ (G) - see "riboflavin"

vitamin B₆ - see "pyridoxine"

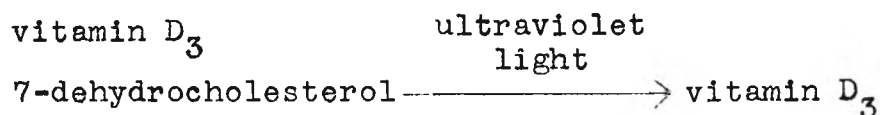
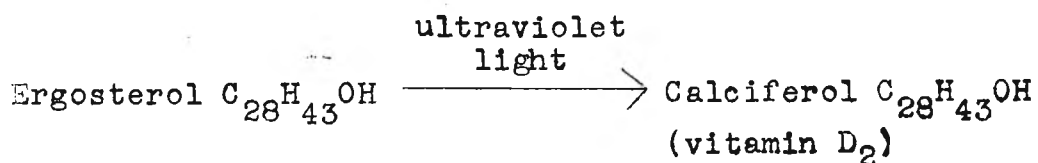
vitamin B₁₂ - (animal protein factor); C₆₃H₉₀CoN₁₄O₁₄P

cyanocobalamin; involved in anemia, growth;
sources - variety and muscle meats

vitamin B_c - see "folic acid"

vitamin C - see "ascorbic acid"

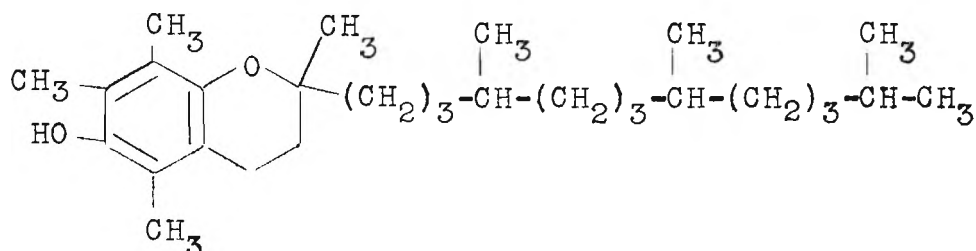
vitamin D - fat soluble vitamin; physiological function; vitamin D regulates calcium and phosphorus metabolism and therefore protects against a disease of the bones called rickets; essential in bone and teeth building;



food sources - fish liver oils, egg yolk, butter, vitamin D fortified foods, sunshine;

0.025 microgram = 1 I.U.

vitamin E (X) - tocopherol; a fat soluble vitamin which functions in promoting reproduction and growth; vitamin E activity in food is in the form of alpha-, beta-, gamma-tocopherol; source - wheat germ oil, embryos of most seeds, spinach, lettuce, egg yolk, vegetable oils, meat and milk



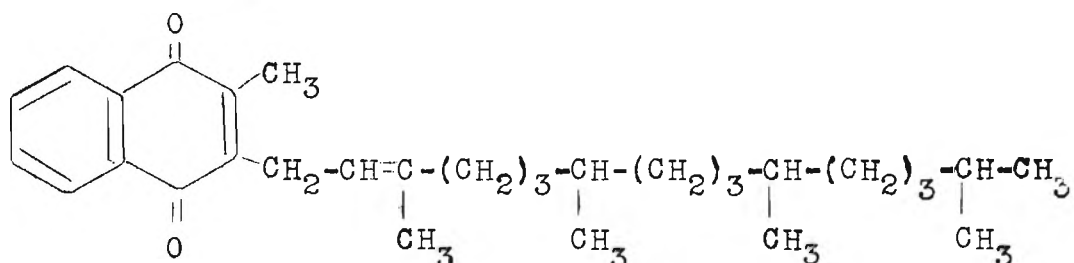
vitamin F - name once applied to essential unsaturated fatty acids; linoleic, linolenic, arachidonic; also applied to vitamin B₁

vitamin G - see "riboflavin"

vitamin H - see "biotin"

vitamin K - a fat soluble vitamin which functions in the clotting of blood; source - green plant tissues, soybeans, vegetable oils;

Vitamin K₁ (C₃₁H₄₆O₂)



vitamin L - see "folic acid"

vitamin M - see "folic acid"

vitamin of reproduction - see "vitamin E"

vitamin U - see "folic acid"

vitellin - a phosphoprotein found in egg yolk

vodka - alcoholic beverage made from rye (or grain) or potatoes

volatile fatty acids - acids which can be removed from solution by steam distillation; these include acids through capric

vol-au-vent - pastry filled with meat

volt (V or v); E, emf - measurement of electrical potential (E) (pressure); a potential of 1 volt will cause a current of 1 amp in a resistance of 1 ohm;

voltage between 2 points = $R_T I$

R_T = total resistance

I = amperes

voltmeter - an instrument for measuring voltage; should be connected in parallel

volume - space occupied by a body;

$$\begin{aligned}\text{volume of a sphere} &= \frac{4}{3}\pi r^3 \\ \text{or} &= D^3(.5236)\end{aligned}$$

$$\text{volume of right cylinder} = \pi r^2 h$$

$$\text{volume of right cone} = \frac{1}{3}\pi r^2 h;$$

$$\text{gram molecular volume} = 22,412 \text{ cc at } 0^\circ\text{C and } 760 \text{ mm}$$

volumetric analysis - an analysis in which results are based upon volume (usually the volume of a solution of known strength that reacts with the substance being analyzed)

voluntary muscle - see "striated muscle"

votator - a heat-exchanger; in fat processing: a chilling machine that solidifies fat that is subsequently removed by scraper blades

Vycor glass - see "hard glass"

W - see "tungsten"

wabash - a variety of soybean

wafer - thin cake or cracker or pastry

waffle - a thin cake made with pancake batter and cooked in a heated mold

waiter - a man who waits on tables in a restaurant; a tray

waitress - a female who waits on tables in a restaurant

Waldorf salad - a salad made with diced apples, celery, nuts and mayonnaise

Wolfram - see "tungsten"

Wallbanger - a mixed drink; fill glass with ice cubes, add 1 oz. vodka, fill with orange juice, float $\frac{1}{2}$ oz. of Liqueur Galliano

walnut - a tall tree raised for timber and nuts. Walnut oil is extracted from the nuts; nuts are used for desserts, baking and confectionery.

English walnut, European walnut - Juglans regia

Black " " - Juglans nigra

White " , butternut - Juglans cinerea

1 lb. English shelled = 2.6 lbs. unshelled

1 lb. English shelled
Halves = $3\frac{1}{2}$ cups

1 cup English shelled
Halves = 100 g (3.5 oz.)

1 lb. English shelled
chopped = 3.5 cups

1 cup English shelled
chopped = 120 g (4.2 oz.)

English walnut composition: 3-4% H₂O

15-21% protein

59-64% fat

15-16% carbohydrate

2-3% ash

see "black walnut"

walnut oil - highly unsaturated oil obtained by hot pressing dried walnut kernels; $d_{250} = 0.923$; see "walnut"

Warburg apparatus - a small container and a manometer used to measure gas exchange during a reaction

warden - a pear that keeps well and is used in cooking

warfarin - C₁₉H₁₆O₄; an anticoagulant rodent poison

warmed-over - reheated

warmed-up - cattle on feed just long enough to begin to show effects of feed

warp - fabric threads that run lengthwise; a rich substance deposited on land by flood water

washing soda - hydrated sodium carbonate

washy - animals on new grass that does not make hard flesh

wasty - too much fat or a paunchy animal

water (H_2O) - part of all living cells; liquid oxide of hydrogen; colorless, tasteless, odorless liquid.

Sources for body: 1. water consumed
2. water in food eaten
3. water from breakdown of food

Water content in - human body 65%, blood 80%, bone 10 to 40%,
milk 87%, seeds 10-20%;

Water requirements for man - 3 to 5 liters/day

Purification - liquid chlorine

Dissociation constant (K_w) = 1×10^{-14}

B.P. - $100^\circ C$ or $212^\circ F$

F.P. - $0^\circ C$ or $32^\circ F$

very slightly compressible

Heat of Vaporization 539 calories per g

Specific heat 1 calorie/gram-degree

Cold water - 8.33 pounds/gal.

Hot water - 8 pounds/gal.

Cold water 1 cu.ft. = $62\frac{1}{2}$ lbs. = 7.48 gal. = 1728 cu. inches

1 gal. = 231 cubic inches

1 cup = 240 g (8.4 oz.)

1 acre inch = 27,154 gal = 226,193 pounds

Average requirement for livestock:

10-12 gal/day	-	horse
8-12 gal/day	-	beef cattle
8-12 gal/day	-	dairy cattle (dry)
35-40 gal/day	-	" " (in milk)
1-2 gal/day	-	sheep
1-2 gal/day	-	swine

Av. human water intake

1	-	1.5 liter drinking
.4	-	.5 " part of food
.3	-	.5 " oxidation of food

1.7 - 2.5 liter total

Av. human water loss

.4	-	.6 liter lungs
.4	-	.7 " skin
.08	-	.1 " feces
<u>.3</u>	-	<u>1.8</u> " urine

1.13-3.2 liter total

water (sausage) - added to sausage
 uncooked - not over 3% of total ingredients
 $\% \text{ water} = 4 \cdot \text{protein} + 3$
 cooked - not over 10% of total product in
 finished product
 $\% \text{ water} = 4 \cdot \text{protein} + 10$

Canned hams = not over 8% above green wt.
 bone, fat, and skin that was removed must
 be included in wt. so that total does not
 exceed 108%

water activity (a_w) -

$$= \frac{\text{vapor pressure of the solution}}{\text{vapor pressure of pure solvent}}$$

It is inversely proportional to the number of solute molecules
water added (ham) - see "ham curing"

water binding properties - term used in sausage manufacturing to
 indicate the ability of a product to retain moisture under
 elevated temperatures

water biscuit - a cracker made of flour, water and sometimes fat

water buffalo - (Bubalus bubalis); Asiatic buffalo often used
 for draft purposes

water chestnut - (Caltrop)(Trapa natans); water plant of which
 the edible seeds are used as food (raw, roasted, boiled);
 the seed has a floury texture and an agreeable flavor

Species

<u>Common name</u>	<u>Scientific name</u>	<u>Used for food</u>
Ling	<u>Trapa bicornis</u>	seed flour
Singhara nut	<u>Trapa bispinosa</u>	seed

also see "Chinese water chestnut"

watercress - (Radicula nasturtium - aquaticum); a solid dark
 green lacy sprig with small ovoid leaves that are grown
 in water, have a pungent flavor and are used as garnish
 or as a salad; Composition: 91-93% H₂O

2-3% protein
 .3% fat
 1-3% carbohydrate
 1% ash

water, demineralized - minerals removed from water by passing
 through an ion-exchange

water, distilled - water removed from minerals by distillation

water, drinking - water that contains no pathogenic organisms and not much organic matter; pH 6.5 - 8.0;

Max. 1000 ppm	total solids
250 "	Cl ⁻
250 "	SO ₄ ⁻⁻
100 "	Mg
0.5 "	Zn
0.3 "	Fe
0.2 "	Cu
0.1 "	Pb

see "water"

water-glass - sodium silicate; eggs are sometimes stored in a solution of this compound; a container for holding and drinking water

water-ground cornmeal - see "cornmeal (old process)"

water hardness - water containing minerals

<u>class</u>	<u>ppm</u>
soft	0-60
moderately hard	60-120
hard	120-180
very hard	180-up

water hemlock - (Cicula); a poisonous plant

watermelon (Citrullus vulgaris) - an annual climbing plant that produces a large fruit; different varieties produce different shapes (large, oblong to round) and rind coloring (green and often green & white striped or variegated) and the sweet watery flesh may be white, yellow, pink or red; seeds are also various colors and may also be eaten. Storage: 70°F to ripen; refrigerate (36-40°F, 85-90% R.H.) before eating; storage life 2-3 weeks

water oats - see "wild rice"

water, potable - water that is suitable to drink

water rice (Indian rice) - see "wild rice"

water, sea - water in the oceans; 3.6% dissolved solids
2.6% sodium chloride

water slaked lime - a liming material composed of 65% CaO and each pound has the neutralizing equivalent of 1.2 to 1.35 lbs. of CaCO₃ (or approx. this quantity of dolomitic limestone)

water soluble vitamins -

ascorbic acid (Vit. C)

B₁₂

biotin (Vit. H)

choline

folic acid

inositol

nicotinic acid

pantothenic acid

paraminobenzoic acid

pyridoxine (Vit. B₆)

riboflavin

thiamin (Vit. B₁)

watt (10^7 ergs/sec)(w) - a measure of power, rate of energy and heat; an electrical measurement; x volt X y ampere = xy watts;

1 watt = 1×10^7 ergs/second
 = 668 lumens
 = 44.254 ft-lbs/min
 = 3.41304 Btu/hr
 = 1 joule per sec
 = 0.73761 foot-pounds per second (ft-lb/sec)
 = 0.10198 kilogram meters per second (kg-m/sec)
 = 0.056884 Btu/min
 = 0.01433 kg-cal/min
 = 0.001360 metric horsepower (75 kg-m/sec)
 = 0.001341 U.S. horsepower (550 ft-lb/sec)
 = 0.001 kilowatt (kw)
 = 0.0009480 Btu/sec (thermal units per sec)
 = 0.0002389 kg-cal/sec (thermal units per sec)

watt-hour (whr) - a rate of power, energy or heat

1 watt-hour = 2655 foot-pounds
 = 367.1 kilogram-meters
 = 3.413 Btu
 = 1.341×10^{-3} horsepower (U.S.)-hours
 = 0.860 kilogram-calories

wax - ester of a long chain fatty acid and a monohydroxy or dihydroxy alcohol; material of plant or animal origin that is harder than fat; a substance secreted by bees and used to construct honeycomb; paraffin wax - higher hydrocarbons of mineral origin

- wax bean - a kidney bean with yellow pods
- wax gourd - see "gourd"
- waxed paper - paper coated with wax and impervious to water and grease
- weak electrolytes - substances between non-electrolytes and electrolytes (strong); example: organic acids and bases
- weakfish - see "sea trout"
- weak market - see "market weak"
- wealthy - a variety of apples that is in season Aug. to Nov. and which make good pies and sauce, but only fair eating
- weanling - an animal that has just been weaned and is eating solid food
- weasand - muscle tissue surrounding the esophagus (passage to the stomach) which is used in sausage
- web fat - fat covering of paunch and intestines
- wedge bone sirloin - a sirloin steak found in the loin end wholesale cut; it is located between the butt end sirloin (1st sirloin from rump end) and the round bone sirloin
- weft - fabric threads that run across the fabric
- weigh-back - animal returned to seller because of a problem
- weighing bottle - a glass vessel with a glass-stoppered top used in weighing samples which should not be exposed to air
- well done - internal beef temperature 170°F
- Welsh rabbit (Welsh rarebit) - a mixture cooked with cheese, milk, ale or beer placed on toast or crackers
- Welsh rarebit - see "Welsh rabbit"
- West Country Down Sheep - Early name (1840) of the Hampshire breed of sheep
- Western style - see "Chicago style"
- wether - a male ovine animal (sheep) that was castrated before sexual maturity was reached
- wether hog - a castrated hoggett
- wetting agent - average concentration of .15% will normally reduce surface tension by $\frac{1}{2}$; increased concentrations do not lower this value appreciably; used when mixing solids with liquids and spreading liquids on a surface
- whale - (Cetacea); an aquatic mammal used for oil, flesh and whalebone; meat composition: 91% H₂O, 20-21% protein, 4-7% fat, 1% ash

whale oil - oil obtained from whale blubber;

Saturated	# of C	%
	14	8-9
	16	12-16
	18	2-3
Unsaturated		
	14	2
	16	15
	18	33-35
Polyunsaturated		
	18	9
	20	8
	22	11

Refined oil

180-205	saponification value
1-4%	unsaponifiable
0.73	acid number
0.9227	specific gravity 20°/4°C
100-140	iodine value

wheat - most important cereal grain of the temperate climate;
flour is made from wheat by grinding and separating out the chaff

Type	Name	Sub types & Characteristics	Color	Use
Bread	<u>Triticum aestivum</u> , <u>T. vulgare</u>	Spring - sown in spring harvested - late summer Winter - sown in autumn harvested - early summer hard - high in protein soft - mealy in texture, high in starch	Whitish amber reddish purple bluish	Bread flour
Durum, Macaroni	<u>Triticum durum</u>	High in gluten	White amber red purple	Semolina pasta
Emmer	<u>Triticum dicoccum</u>	Important in early historic times		Fodder
Rivet, cone, English	<u>Triticum turgidum</u>	Important in early historic England		Food for livestock

(cont'd on next page)

wheat (cont'd)

<u>Composition</u>	<u>Bran</u>	<u>Endosperm</u>	<u>Germ</u>	<u>Whole grain average</u>
percent	13	85	2	100
water	8	13	8	11-13
protein	11	13	32	8-15
fat	4	1	8	1-3
carbohydrate	54	72	38	64-76
ash			4	1-2

Moisture content for storage should be 12-14%;

An annual grain: 60 lbs./bu or 1.9 lbs./qt.;

Seeding - 1-3 bu./acre; 280-300 days to maturity;

Ground wheat 1.7 lbs./qt.; pH 6.0

Approx. nutrient used for:

30 bu. grain	1 ton straw	
34	10	1b. N
15	3	1b. P ₂ O ₅
9	15	1b. K ₂ O

wheat bran - husk of grain and some attached endosperm;

0.5 lb/qt.; 16 lbs/bu; composition: 11% H₂O,

15-16% protein, 3-5% fat, 60-70% carbohydrate, 6% ash

wheat, cracked - cutting or cracking cleaned wheat (durum not used) into small pieces

wheat germ - part of kernel necessary for new plant life (embryo);

it is the oil containing portion of the kernel and it is flattened and sifted out as a yellow oil flake;

composition: 8-11% H₂O, 27-32% protein, 8-11% fat, 38-47% carbohydrate, 4% ash

wheat germ oil - a bland yellow oil obtained from wheat germ;

15-16% saturated

29-30% oleic

44-52% linoleic

4-11% linolenic

6-20 acid value

115-125 iodine value

5% unsaponifiable

2 I.U. of vitamin E/g

0.925-0.933 d₂₅²⁵

180-190 saponification value

wheatings - wheat middlings with a maximum of 5.75% fibre
wheatings, superfine - wheat middlings with a maximum of 4.5% fibre
wheat middlings - particles with less husk and more endosperm than bran; 0.8 lbs./qt.; 26 lbs./bu
wheat screening - residue left from screening of wheat grain; 1 lb./qt; 32 lbs./bu

wey - (milk serum, lacto-serum); liquid portion of milk separated from solid portion (curd) by action of rennet or lactic acid; obtained when making cheese or manufacturing casein;

Composition	% H ₂ O	% Protein	% Fat	% Carbo- hydrate	Lactose	% Ash
Liquid	92-93	1	.2-.3	5		1
Dry	4-5	12-13	1	74	65	8

see "cottage cheese"

whipping cream - a cream capable of being beaten to a froth; min. 30% milk fat; $\frac{1}{2}$ pt. whipping cream = 2 cups whipped cream

whipporwill - a variety of cowpeas

whiskey (Irish & American variety), whiskey (Scotch variety) - made by the distillation of fermented grain (rye, corn, barley, wheat) mash of malt or of cereal grains saccharified by diastase of malt and stored in wood for at least 4 years; not less than 80° proof; 37 to 53% alcohol by volume; 0.923 - 0.935 density at 25°C; bourbon - from barley or wheat malt and corn; rye - rye or barley malt and unmalted rye

whiskey and soda - drink made from whiskey and soda water

whiskey sour - cocktail made from whiskey, bitters, sugar and lemon juice and served with orange and maraschino cherry

whistler - defective of wind; a broken winded horse

whitebait - young herrings (Clupea harengus) and sprats (C. sprattus); see "smelt"

white bass - (Lepidema chrysops); fresh water food fish

white blood cells (leukocyte) - blood cells that contain no hemoglobin; 5,000/cubic millimeter of blood; 1/3000 of blood volume

whitefish - a fat fresh water fish caught in northern lakes of U.S. and Canada; see "demersal fish"

white flour - starch and gluten of the endosperm of a kernel of wheat

white hake - see "hake"

white mullet - see "mullet"

white mustard - (Brassica hirta or Sinapis alba); plant grown for mustard and mustard oil

white pepper - mature peppercorn with outer black skin removed from dried fruit; see "pepper"

white rice - see "rice"

white rot - eggs with threadlike shadows in the thin white

white scours - a microbial infection in newborn calves that is often fatal

white shad - see "shad"

white tokay wine - a dessert wine with nectar-like flavor made from sweet Catawba grapes

white trout - see "sea trout"

white walnut - see "butternut"

whitewash - a liquid for whitening a surface;

1. Combine 38 lbs. good quick lime with water or 50 lbs. hydrated lime (protected from the air) with 7 gal. H₂O
2. Strain paste through fly screen
3. Add 4 gal. H₂O and allow to cool
4. Dissolve 3 lbs. borax (or trisodium phosphate, better) in 3 gal. of skimmed milk (or 1 gal. of water and then added to 5 lbs. casein which has been softened for 2 hrs. in 2 gal. hot H₂O, better)
5. Dissolve 3 pts. formaldehyde in 3 gal. of water
6. When the lime paste #3 and milk or casein solution #4 are cool, slowly mix by stirring
7. Just before using, slowly add formaldehyde solution, with stirring (adding too fast will cause casein to gel)

Note: only mix as much as can be used in one day

whiting (frostfish, silver hake) - a lean cod-like fish caught in New England and England; see "demersal fish"

whole dry milk (dry milk solids) - made by removal of water from fluid whole milk; Max. 4-5% moisture; at least 26-28% milk fat -- 1 lb. = 3-2/3 cups & 1 cup = 120 g (4.3 oz.)
U.S. Grades: Premium, Extra, Standard

whole fish - fish as it comes from water

wholesome - promotes health

whole wheat - made from entire wheat kernel

whole wheat flour - made from entire kernel of wheat; flavor deteriorates with storage and maximum shelf life is approx. 1 month; see "graham flour"

whortleberry - see "bilberry"

wide-end middle - natural casings used in the meat trade; it comes from the middle part of the large intestine of beef

wide hog casing - a casing that is 38 to 43 mm in width

wiener - short for wienerwurst; a sausage product made from beef, pork and sometimes veal; same as frankfurter in U.S.

Wiener schnitzel - breaded veal cutlet with garnish

wienerwurst - Vienna sausage; frankfurter

wienie - see "wiener" or "frankfurter"

wild cherry - when wilted, it is a poisonous plant

wild date palm - sap is obtained and converted into sugar

3 qts. sap = 1 lb sugar

wild marjoram - see "oregano"

wild rice - (Zizania aquatica); the seed of a reed-like water plant and not true rice; it has a dark-colored kernel which is narrow and cylindrical in shape; it is hulled but not milled

Wiley melting point - a solid disk of fat is placed in a water-alcohol mixture and the temperature is slowly increased; the temperature at which the disk becomes a sphere is the m.p.

Wiltshire - a large, slow maturing, horned breed of sheep

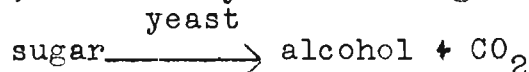
Wiltshire side - is half a hog carcass with the head, feet, aitch bone, back bone, tenderloin and skirt removed; it is cured and smoked before retailing

wind - natural movement of the air

calm	less than 1 mph
light air	1 - 3 mph
light breeze	4 - 7
gentle breeze	8 - 12
moderate "	13 - 18
fresh "	19 - 24
strong "	25 - 31
near gale	32 - 38
gale	39 - 46
strong gale	47 - 54
storm	55 - 63
violent storm	64 - 73
hurricane	74 and over

winding - placing one front or hind foot directly in front of the opposite one in action

wine - alcoholic drink produced by fermentation of fruit juice by yeast (Saccharomyces ellipsoideus) under anaerobic conditions; 30°C and 25% sugar will yield 7-16% alcohol (by volume); alcohol by volume ranges from 7 to 22%;



CO₂ is usually allowed to escape but in sparkling wines it is retained; flavor affected by:

1. type of grape
2. climate
3. soil
4. winemaker;

(cont'd on next page)

wine (cont'd)

- dry - low sugar
 fortified - alcohol added
 medicated - medicament added
 sour - ferment to acetic acid
 sweet - high sugar
- red - fermented with grape skins
 white - juice is separated from grape skins prior to fermentation; pleasant to drink at an earlier stage than red
 rosé - juice remains in contact with skins a few hours; wine should be consumed when **it is** young
 spark-
 ling - sugar is added to wine causing fermentation to begin again and more alcohol and bubbles are produced

Per 100 cc (20°C):

- not more than .1 g NaCl
 " " " .2 g potassium sulphate
 " " " .14 g volatile acids (calculated as acetic) in red wine
 " " " .12 g volatile acids (calculated as acetic) in white wine
 4.5 - 10.0 g alcohol in unfortified wine
 Max. 14.5 g " " " "
 .4 - 1.0 g glycerine in unfortified wine
 .11 - .44 g ash
 .5 - .9 g total acidity (calculated as tartaric acid)
 .007 - .009 g of nitrogen
 2.3 - 3.8 pH

wineberry (Rubus phoenicolasius) - similar to the common raspberry except it is a clump-forming plant and the canes are covered with red hair rather than prickles; the fruit is golden, orange, shiny and translucent

wine bottle size - size of wine containers

Size	fl. oz.	cups	Serving per bottle	
			Dinner & Sparkling wines - 4 oz.	Dessert wines 3 oz.
Fifth 4/5 qt. Most popular	25.6	3-1/8	6	8
Tenth 4/5 pt. 1/2 bottle	12.8	1 1/2	3	4
Half gallon bottle or jug	64	8	16	21
Gallon bottle or jug	128	16	32	42

wineglass - a measure of volume

1 wineglass = 4 tablespoons
 = 2 fluid oz.
 = 60 ml.

2 wineglasses = 1 gill

winesap - a variety of apple in season from Jan. to June and is a good cooking and eating apple; also see "stayman winesap"

wine servings - see "wine bottle size"

wine spirits - distillation product of fermented grape juice

wine vinegar - see "grape (wine) vinegar"

winging - swinging the forefeet out at a trot

winkle - a shellfish; 20% edible (av. 20% protein)

winter apple - an apple that keeps well or ripens late

winter barley - barley sown in autumn

winterization - higher melting fractions are removed from fat by cooling, crystallization and filtering; the resulting oil remains clear at low temperatures

winter melon - see "melon"

winter pear - a pear that keeps well or ripens late

winter sweet - see "oregano"

winter wheat - wheat sown in autumn; harvested in the summer

wire grass - see "Bermuda grass"

wireworm - light brown wiry-looking insect that bores into seed or stem of corn and causes failure to germinate or wilting and dying of older plants; Control: aldrin, heptachlor

wishbone - furcula bone of the fowl that supports the crop

wither - top of shoulder; loss of sap or juice; dry and wrinkled

witloof chicory - see "French endive"

wok - a shallow oriental cooking pan

wolf fish - see "catfish"

wolfram - see "tungsten"

wong bok - see "petsai"

wood - xylem makes up the major portion of a tree stem and branches; 1 cord = 128 cu.ft.
 = 3.625 cu. meters

wood alcohol - see "methyl alcohol"

wood almond - (*Hippocratea comosa*); a plant yielding an edible seed and oil

wood ashes - a material that can be used for liming and is composed of 45% CaCO_3 and each pound has the neutralizing equivalent of .4³ to .5 pound of CaCO_3 (or approx. this quantity of dolomitic limestone)

wood nut - filbert

wood rosin - rosin remaining after the distillation of steam distilled wood turpentine

wood spirits - see "methyl alcohol"

wood sugar - see "xylose"

wood tar - tar obtained by destructive distillation of wood

wood turpentine - turpentine produced from wood and includes steam distilled wood turpentine and destructively distilled wood turpentine

woof - see "weft"

wool - crimped fiber produced primarily by sheep; it is principally keratin protein; 1 lb. greasy domestic shorn wool = 0.45 lbs. scoured wool

woolen fabric - fabric made from wool too short to comb; it is softer and has less strength than worsted fabric

wool fat, wool grease - lanolin

wool grease - see "yolk" and "wool fat"

wool yield -

$$\text{yield} = \frac{\text{clean (scoured) wool wt.}}{\text{grease wool wt.}} \times 100$$

$$\text{yield} = 100 - \% \text{ shrink}$$

$$\text{scoured value} = \frac{\text{grease wool price}}{\text{yield}}$$

$$\text{grease wool value} = \text{scoured value} \times \text{yield}$$

worcestershire - a meat sauce made of soy, vinegar, and other ingredients

wormwood - (*Artemisia absinthium*); a perennial herb of the daisy family that is used in flavoring liqueur and vermouth wine

worsted fabric - wool fabric made from combing-length wool that is the smoothest, hardest and longest wearing of all wool fabrics

wort - in beer manufacture the clear liquid left after straining the mashed grain and malt; infusion of plant to be fermented

wurld wheat - wheat in which the bran is chemically (sodium hydroxide and steam) peeled, scoured, acid neutralized and dried; it is lighter in color, higher in cost and less nutritious than bulgur

wurst - sausage

Wyandottes - an American class of chickens that lays a light brown egg, and has a rose comb

<u>Varieties:</u>		<u>plumage color</u>	<u>shank</u>	<u>beak</u>
*Silver-laced	♂	back - white neck is black with white lacing, body - white edged in black, tail feathers black & undercolor - slate	yellow	yellow
	♀	black & white lacing over most of body, tail & undercoat is darker in color	"	"
Golden-laced		same as Silver with white replaced by golden	"	"
*Buffs		even buff color	"	"
*White		white	deep yellow	"
*Partridge	♂	neck & back feathers green black with red edging, rest of body slate	yellow	"
	♀	neck & back feathers black with red lacing, rest of body slate	light yellow	"
*Silver-penciled	♂	neck & back white with black edging of feathers rest of body black with some white	yellow	"
	♀	gray with black penciling gives lacy appearance	light yellow	"
*Columbian		mostly white, neck & tail feathers black with white lacing	yellow	"
*Black		greenish black to slate	♂ yellow ♀ light yellow	"

*Have bantam varieties.

χ^2 - see "chi-square"

xanth- - yellow

xanthine oxidase (Schardinger's enzyme) - an oxidative enzyme found in milk and liver

xanthophyll (lutein, luteol) - $C_{40}H_{56}O_2$; a yellow pigment found in plants, egg yolk and butter; similar to chlorophyll; hydroxy carotene derivative

xanthoproteic test - a general but not very sensitive test for protein; a yellow color is formed when concentrated nitric acid comes in contact with tyrosine and tryptophan; all common proteins if present in large quantities give a positive test

xarque - see "jerked beef"

X-axis - see "abscissa"

X chromosome - a sex chromosome that carries the female characteristics

Xe - see "xenon"

xenon (Xe) - an inert gaseous element; at. no. 54; at. wt. 131.30; electron configuration 2-8-18-18-8; oxidation state 0
orbit K L M N O

xero- - dry

xerophagia - consuming dry food

ξ (ξ , ξ) - Greek letter with an English equivalent of x.

xiph- - sword like

xiphoid cartilage - tip of breastbone

X-ray - electromagnetic waves with a wavelength of 5×10^{-7} cm to 6×10^{-10} cm

xyl- - wood

xylan $(C_5H_8O_4)_n$ - a hemicellulose found in many plants that

will hydrolyze to xylose

xylem - cells from which wood is developed

xylose (wood sugar) - $C_5H_{10}O_5$; a 5-carbon monosaccharide

(pentose) found in fibrous materials; a sugar 40% as sweet as sucrose; used as a diabetic food

Y - see "yttrium"

yam (Dioscorea) - sometimes used to describe any tropical root crop; in U.S. same as sweet potato; the Dioscorea produces a tuber with a white or yellow flesh; the tuber is cooked and usually mashed; it is high in starch and low in protein; composition: 74% H₂O, 2% protein, .2% fat, 15-25% carbohydrate, 1% ash; see "sweet potato"

yam bean (Pachyrrhizus tuberosus) - plant that produces both edible tubers and seed or pods

yaourt, yourt - a fermented milk; see "yogurt"

yarbs - ancient term for herbs

yard (yd) - a measure of length;

1 yd = 0.0004934 U.S. nautical mile
 = 0.0005682 statute mile
 = 0.0009144 kilometer (km)
 = 0.18182 rod (rd)
 = 0.91440183 meter (m)
 = 3 feet (ft)
 = 36 inches (in.)
 = 91.440183 centimeters

5½ yards = 1 rod

yautia - see "tannia"

Y-axis - see "ordinate"

Yb - see "ytterbium"

Y-chromosome - a sex chromosome that carries the male characteristics

yeau - to lamb

yearling - an ovine animal (sheep) from 1 to 2 years of age and having two permanent incisor teeth; animal 2nd year of age

yearling hen - female turkey between 7-15 months old

yearling tom - male turkey between 7-15 months old

yeast - a microscopic plant that can convert sugar to carbon dioxide which is used as a leavening agent in foods; used to produce alcoholic fermentation; optimum temp. for reaction (not storage) 82°F; see "dry yeast", "compressed yeast"

yellowfin - see "grouper", "tuna"

yellowhammer - small, mixed breed, yellow cattle

Yellow Jersey - a dry mealy variety of sweet potato

yellow perch - see "lake perch"

yellow prussiate of soda - sodium ferrocyanide; Na₄Fe(CN)₆ · 10 H₂O

yellowtail - see "flounder"

yellow transparent - a variety of apple which is in season in July & August that makes excellent sauce, good pies but only fair for eating

yelt - English word for gilt

yerba de maté - see "mate "

-yl - I.U.C. ending for acid halides; univalent hydrocarbon radical

-ylene - bivalent hydrocarbon radical

-yne - ending of I.U.C. names for alkynes

yogurt, yoghurt - custard like product made by fermenting

(Lactobacillus acidophilus and Streptococcus thermophilus)

concentrated whole or skimmed milk; fruits or flavors are often added; 1 pt = 2 cups

1 cup = 250 g (8.7 oz)

<u>composition</u>	<u>% H₂O</u>	<u>% protein</u>	<u>% fat</u>	<u>% carbohydrate</u>	<u>% ash</u>
made from skimmed milk	89	3	2	5	1
made from whole milk	88	3	3.4	5	1

yolk - yellow mass of stored food found in the inner portion of an egg of a bird

yolk (wool grease) - a substance (natural oil or grease) found on sheep fleeces which helps to preserve it

york imperial - a variety of apple that is in season in Nov. to March; is a good sauce apple; a fair to good cooking and eating apple

Yorkshire - a bacon type hog originating in northern England by crossing the Large Yorkshire with Leicester and later crossing with Middle and Small Yorkshire; its color is solid white and has an erect ear and a long body

Yorkshire pudding - eggs, flour and milk baked in meat fat; batter baked under meat

young berry - hybrid between blackberry and dewberry

young hen - female turkey 5 to 7 months old

young tom - male turkey 5 to 7 months old

ytterbium (Yb) - a rare earth element; at. no. 70; at. wt. 173.04; electron configuration 2-8-18-32-8-2; oxidation states - orbit K L M N O P +2, +3

yttrium (Y) - an element; at. no. 39; at. wt. 88.91;

electron configuration 2-8-18-9-2; oxidation state +3
orbit K L M N O

zabaglione - a thick, light drink made from eggs, sugar and wine or fruit juice

zarf - metal holder for coffee cup

zeta (Z, ζ) - Greek letter with an English equivalent of z.

zeaxanthin - a carotenoid pigment used in food coloring

zebu (Bos indicus)- asiatic ox; one or two humps of fat on the shoulder; see "Brahman"

zein - an alcohol soluble protein obtained from corn (2.5 - 10%) (Zea mais); contains little lysine or tryptophan

Zenker's fixing fluid - a fixative;

Mix: bichromate of potassium - 2.5 g
 bichloride of mercury (corrosive sublimate)(handle with glass) - 5.0 g
 sodium sulphate - 1.0 g

Dissolve in 100 ml of water with aid of heat; add 5 ml of glacial acetic acid when ready to use;

Use:

1. 90 times as much fluid as tissue
2. Fixing time 30 min to 36 hrs depending on density of tissue
3. Wash in running water 12 to 24 hrs
4. In alcohol
 - 35% - 20 min
 - 50% - 20 min
 - 70% - 20 min
5. Removal of mercuric crystals; (may be done now or after cutting tissue -- by treating with dilute iodized alcohol for 30 min and then washed in 70% alcohol)
 - (a) add iodine to alcohol to port wine color
 - (b) renew iodine when color disappears (usually 12-36 hrs)
 - (c) wash in 70% alcohol until no more I₂ is extracted

zeolite - $\text{Na}_2\text{O} \cdot 2\text{Al}_2\text{O}_3 \cdot 5\text{SiO}_2$ and $\text{CaO} \cdot 2\text{Al}_2\text{O}_3 \cdot 5\text{SiO}_2$

zephiran - (Benzalkonium chloride) an ammonium detergent that is quite effective as a disinfectant; a cationic surface active agent; 1 - 1,000 to 1 - 5,000 - concentration often used

zest - outer peel of citrus fruit

ziega - curd made by adding rennet and acetic acid to milk

zinc (Zn) - an element; at. no. 30; at. wt. 65.38;

electron configuration 2-8-18-2; oxidation state +2
orbit K L M N

zirconium (Zr) - an element; at. no. 40; at. wt. 91.22;

electron configuration 2-8-18-10-2; oxidation state +4
orbit K L M N O

zitoni - see "macaroni"

zitoni rigati - see "macaroni"

Z-line - dark line that bisects the I-band in muscle fibers

Zn - see "zinc"

Zr - see "zirconium"

zucchini - a summer variety of squash; see "marrows"

Z value - see "decimal reduction time" and "z-values"

z-values - the slope of the curve when the log of decimal re-
duction time is plotted against degrees Fahrenheit

zwieback - loaf that is baked, sliced and toasted;

1 cup = 4 coarsely crumbled slices

= 9 finely crumbled slices

zymase - a yeast enzyme that splits sugar into alcohol and CO₂

zymogen - precursor of active enzymes