1. **Master List Chemoprevention of Drugs and Natural Compounds for Cancer**

By James Watson

Attachment to blog entry **PART 3: *Slaying Two Dragons with the Sound of Silence.*** [***www.agingsciences.com***](http://www.agingsciences.com) **May 18, 2013**

**Source or Chemical Ingredients Mechanism of Action** **Cancer Effects with this Compound Anticancer Risk Reduction Dose w/this strategy**

**A** – **5α-reductase inhibitors**  (-) conversion of testosterone (-) prostate cancer 5mg qd (finasteride) 23%

 Synthetic Examples: to dihydrotestosterone 0.5mg qd (dutasteride)

 finasteride (+) apoptosis in prostate cancer cells

 dutasteride

 Natural Examples:

 Green tea

 Mushroom extracts (*Ganoderma lucidum)*

liposterolic extract of *Serenoa repens* (LSESr)

 and β-sitosterol, in the treatment of AGA.

 **Allspice extract** (*Pimenta dioca*) Ericifolin: silences AR in prostate CA anti-proliferative effects *in vivo* for breast 100-200 μg/ml *in vitro 50% ?*

 ingredients: Eugenol, Gallic Epigenetic effect:` and prostate CA (55% in rodent model of

 acid, and Ericifolin (-) HATs => (-) histone acetylation prostate CA and 52% in *in vivo* prostate

 (histones H3 & H4 in promoter region of cancer cells.

 AR gene and AR regulated genes

 **Allyl mercaptan** (garlic)

 Epigenetic mechanisms:

 (-) HDACs

 **Alprazolam** (see benzodiazepines) Epigenetic mechanisms:

 BET bromodomain inhibiton

 **Anastatins A & B**  Epigenetic mechanisms:u

 (-) HDACs

 **Anacardic acid** (see Epigenetic mechanisms

 Cashew nut shell liquid) (-) HATs => NF-kB => LOX1

 **Angiogenesis inhibitors** – see individual compounds listed elsewhere beneficial effects for prostate cancer, breast cancer,

naturally occuring: colorectal cancer, melanoma, and many other

 emodin (*Oxygonum sinuatum)* (-) Protein kinase CK2 cancers in *in vitro, in vivo,* and in human clinical

 coleon A lactone (*Plectranthus barbatus)* => (-)angiogenesis studies. Inhibition of angiogenesis alone does

 Triphala churna (3 fruits) (-) VEGR-2 phosphorylation not have any effect, but when combined with

 Vitamin E a cytotoxic chemotherapy regiment, increases

 fish oil cancer inhibition and apoptosis via several

 H2-blockers mechanisms, some of which may not involve

 mushrooms angiogenesis

 Curcumin

 Cinnamon

 Garlic

 Spinach – chloroplast glycoglycerolipids

 synthetic angiogenesis inhibitors epigenetic effects:

 vorinostat (SAHA) – at low doses (-) HDACs

 valproic acid – at low doses (-) HATs

 **Apicidin** *(fungal metabolite)* (-) HDACs

 **Aromatase inhibitors**  (-) Aromatase inhibits the proliferation of breast cancer

 Synthetic:

 Arimidex,

 Femara

 Natural:

 Mushrooms

 **Aspirin** (ASA) (-) Arachidonic acid cascade

 (-) COX1 and COX2

 (+) mTOR

**B – Bakuchi seed** (

 **Berch Leaf** (

 **Benzodiazepines** Epigenetic mechanisms:

 examples: BET bromodomain inhibitors

 alprazolam => selectively bind to acetyl lysine

 midazolam modules of BET family

 **B Vitamins** (primarily Folic acid (+) DNA methylation ⬇ risk of colon cancer

 which has the anti-cancer effects) (+) stabilization of tumor suppressor genes => (-) LOH

 **Bitter Melon Extract** (*Momordica charantia)* 5% solution in *in vivo*

 Ingredients: (-) cell proliferation anti-cancer effects *in vitro* for breast cancer

 charantin (+) apoptosis in cancer cells pancreatic cancer, nasopharyngeal cancer,

 mormordin (+) cell cycle arrest and prostate cancer

 & polyphenols

 **Black Pepper**

 **Blood Root** (

 **Boswellic acid** (Frankincense) (-) topoisomerase I and II

 (-) LOX

 (+)Caspace and PARP cleavage

 **3-Bromopyruvate** dual metabolic disruptor

 (-) mitochondrial OxPhos

 (-) hexose monophosphate pathway

 **BET bromodomain inhibitors** (see Epigenetic mechanisms:

 under names of individual compounds bind to acetyl lysine

 listed below:) modules of BET family

 JQ1 result: (-) c-Myc

 iBET (triazolo-benzodiazepine)

 alprazolam

 midazolam

 **Buckthrone bark**

 **Butternut bark**

 **Butyrate**  (+) AP-1 => paradoxical (-) of tumor growth

**C - Calcium** (-) fecal diacylglycerol => (-) cell proliferation ⬇ risk of colorectal polyps (adenomas)

 **Cancer Stem Cell Apoptosis** (-) cell growth 100X more potent than paclitaxel in breast

salinomycin (+) induction of cancer stem cell differentiation cancer stem cells

 (+) loss of cancer stem cell gene expression

 **Chili Peppers** 200 mg/day

 active ingredients:

 capsaicin

 capsicum

 **Cashew nut shell liquid** Epigenetic mechanisms

 ingredient: anacardic acid (-) HATs (p300) => (-) histone acetylation

 (-) HATs => NF-kB => LOX1

 **Celecoxib** (Celebrex) (-) COX2

 (-) PDK1 => (-) mTOR

 **Chapparral**

 **Chia seeds**

 **Coffee** (**Caffeic acid, aka CAFÉ,** (-) NF-kB => (-) COX2 ⬇ risk of colorectal aberrant crypt foci (ACF)

 **and Chlorogenic acid**) (-) LOX

 (+) HO-1

 Epigenetic mechanisms

 (-) HDACs

 (-) DNMTs => (-) DNA demethylation

 **Conjugated Linoleic acid (CLA)** 1 gm t.i.d.

(from Safflowers)

 **Chlamydocin** (-) HDACs

 **Cinnamon**

 active ingredients:

 Cinnamic acid (-) HDACs

 hydroxycinnamic acid (-) HDACs

 procyanidin oligomers (-) angiogenesis via VEGR-2

 phosphorylation inhibition

 **Cubeb berry**

 **Curcumin** (see turmeric below)

**D** – **Vitamin D3**  (also known as (+) Klotho  ⬇ risk of breast cancer

 1, 25-hydroxyviatamin D3) (-) angiogenesis ⬇ risk of colon cancer

 **Diallyl disulfide**

 **DFMO** (diflouromethylornithine) (-) ornithine decarboxylase (ODC) => (-) polyamine ⬇ risk of colorectal polyps (adenomas)

 synthesis => (-) neoplasia

 **Dragon blood**

**E** – **Vitamin E** (primarily (+) apoptosis in cancer cells with TNF-a ⬇ risk of breast cancer

 α-tocopherol or α -TOS) (+) apoptosis in cancer cells with TNF-a ⬇ risk of colon cancer in animal models

 (-) oncogenic Ras => (-) ERK signaling (-) angiogenesis

 **EGCG, EGC** (see green tea below)

 **Elesclomol** (+) apoptosis by generating ROS

 **Equol** (-) HDACs

 **Erucin** (sulforaphane analog) Epigenetic mechanisms:

 (-) HDACs

 **Eucalyptus leaf** (

 **EVOO** (Extra virgin oive oil) (+) ER stress chaperones strong (-) of breast cancer cells

 active ingredients: (+) Unfolded protein response genes EVOO secoiridoids prevent the epithelial

 oleic acid (+) Heat shock proteins to mesenchymal transition (i.e. the

 hydrophilic phenolics (+) ROS precancer-to-cancer conversion seens

 lignans (+) CR mimetic in tumorigenesis that seems to be driven

 flavonoids (+) c-Fos, c-Jun => (+) AP-1 => (+) polyamine by nearby senescent cells secreting

 secoiridoids metabolism => (-) cancer the toxic inflammatory cytokines called

 (+) AMPK the “senescence associated secretory

 Epigenetic effects: phenotype” (SASP)

 (+) SIRT1 => ⬇ MT genes, ⬇ Cancer stem cells

 (-) cancer stem cell markers – SKP2 => less

 degradation of tumor suppressors: p27, p57, p21, p130, FOXO1

 (-) HATs

 (+) spermidine upregulation (-) HATs

**F** – **Farnesol** HMGCoa feedback inhibitor

 **Feverfew**

 **Fiscetin**

 **Fish Oil** (DHA & EPA) (-) oncogenic Ras => (-) ERK signaling ⬇ risk of colon cancer in animal models

 (-) angiogenesis ⬇ risk of liver cancer

 (+) immune effects  ⬇ risk of skin cancer

 (-) endothelial cell adhesion

 (-) Protein kinase B

 **Flavones** (see polyphenols below)

 **Flaxseed**

 **Folic acid** (aka folate) methyl donor (deficiency can cause cancers) deficiency plays a role in breast, cervix,

 (+) DNA repair ovary, brain, lung and colorectal

 (+) DNA methylation

 mechanism by which deficiency causes CA:

 altered CpG methylation => (+) c-Myc activation

**Source or Chemical Ingredients Mechanism of Action** ⬇ **Cancer that This Compound**

**G** – **Gallic acid** (see Allspice)

 **Garcinia** (Mangosteen fruit rind) (-) c-Myc => (+) apoptosis cytotoxic for leukemia, breast, gastric, 3-6 tablets/day of

 ingredients: prenylated xanthones Epigenetic effects: lung and liver cancer *in vitro* 500-1000mg/tablet

 and garcinol (-) HAT (p300 & PCAF) => (+) apoptosis

 (-) HAT => (-) MAPK/ERK, PI3K/Akt, etc.

 **Garlic** (see allyl mercaptan) (-) cell cycle progression

 (+) apoptosis

 (-) angiogenesis

 Epigenetic effects

 (-) HDACs => histone acetylation => apoptosis

 **Green coffee beans** (-) nitrosylation of proline by nitrite ⬇ risk of environmental carcinogen-induced cancers

 (Chlorogenic acid) (-) AP-1

 (-) NF-kB

 (-) MAPKs

 Epigenetic Effects

 (-) HDACs => (-) deacetylation of histones

 (-) DNMTs => (-) DNA methylation

 **Green tea** (-) COX2 => (-) PGE2 ⬇ risk of colon cancer in animal models & humans

 (EGCG & EGC) (-) LOX ⬇ risk of pancreatic cancer in humans

 (-) Topoisomerase ⬇ risk of prostate cancer, BPH, and alopecia

 (+) apoptotic cancer cell death

 (+) cell cycle arrest

 (-) Telomerase

 (-) 5α-reductase

 (-) Skp2 => (-) tumor suppressor degradation

 Epigenetic Effects

 (-) HATs

 (-) DNMTs

 modulates miRNA

 **Genistein** (see soybeans below) Epigenetic effects

 (-) DNMTs =>

 (-) HDACs

 (+) HATs

 modulates miRNA

 **Gentisic acid** (-) FGF

found in: citrus fruits, grapes, artichoke,

 sesame, red sandalwood, rose gum,

 gentians, olive oil

 **Goldenseal** (*Hydrastis Canadensis*) Antiproliferative bioactive herbs 2000mg/day Speranskia or goldenseal herb powder

**H – Histacin** (-) HDACs

 **H2 blockers** (Cimetidine) (-) angiogenesis ⬇ risk of death from colon CA if taken preop

 (and Ranitidine) (+) immune effect via IL-2 & IFN-α induction of NK cells & post op for 1 yr

 (+) antigen presenting function of dendritic cells

 (+) tumor infiltrating lymphocyte (TIL) activity

 **Hydroxybenzoic acids**

 found in: grapefruit, olive oil,

 medlar fruit, carrots, oil

 palm, grapes, red sandalwood,

 peroba, betel palm, etc.

**I** – **Isothiocyanates** (+) Nrf2 => ARE genes => antioxidant enzymes ⬇ risk of colon cancer

 found in: broccoli, brussel sprouts (-) HIF-1α => (-) VEGF, (-) LDH ⬇ risk of breast cancer

 water cress (+) apoptosis ⬇ risk of prostate cancer

 cauliflower and (-) hTERT

 cabbage) Epigenetic mechanisms

 6 natural compounds: (-) DNMTs => hypomethylates gene promoters

 allyl isothiocyanate (-) HDACs =>  global and local

 benzyl isothiocyanate histone acetylation

 phenethyl isothiocyanate

 sulforaphane

 iberin

 erucin – sulforaphane analog

 Synthetic isothiocyanates

 phenylhexyl isothiocyanate (-) HDACs => hypomethylates p16 => activation

 p21 activation

 **Isoflavones**

 found in : soybeans, fava beans

 and kudzu

**J** – **JQ1** (Brd4 inhibitor) Epigenetic mechanisms should reduce the risk of all c-Myc-driven

 (-) BRD4 binding to chromatin cancers: multiply myeloma, leukemia,

 (-) c-Myc => inhibition of cancer growth and lymphoma.

**K** – **Kochea seed** (-)

**L – Lanosterol** Feedback inhibitor of HMGCoA ⬇  aberrant crypt foci

 **Lanperisone** (+) Apoptosis by generating ROS

 **Lycopene, Luteolin, Lutein** (+) PPaR-γ ⬇ risk of prostate, lung, and breast cancer

 (from tomatoes) (+) Nrf2 => ARE enzymes

**M – Mangostein fruit rind** (see Epigenetic effects: (-) HAT

 Garcinia under G)

 **Mahanine** (-) DNMTs => (-) DNA methylation

 **Mayapple** *(Podophyllum peltatam)* (-) topoisomerase II FDA approved for lung cancer, choriocarcinoma, ovarian

 active ingredient: cancer, testicular cancer, lymphoma, AML

 etoposide

 teniposide

 **Metformin** (+) AMPK  ⬇ risk of colon, pancreatic, breast, prostate, lung, skin, and liver ca

 (-) mTOR 25-35% cancer risk reduction overall

 (+) Autophagy  55-62% risk reduction for pancreatic CA

 **MitoQ** Metabolic disruptor

 (-) Mitochondrial OxPhos

 **Mushrooms** (+) lignin binding agents

 (-) angiogenesis

 (-) aromatase

 **mTOR inhibitors**

 natural compounds:

 rapamycin

 ECGC

 curcumin

 resveratrol

 **Myrrh** (Sweet Myrrh)

**N** – **Nuts**

 **NSAIDS** (aspirin, indomethacin, (-) COX2 => (-)PGE2 synthesis ⬇ risk of colon, pancreatic, breast, prostate, lung, skin, urinary ibuprofen, and COX2 specific (-) LOX bladder, and liver cancers

 inhibitors like Celebrex) (+) AMPK  total risk ⬇ for breast cancer may be as high as 40-50%, primarily via (-) COX2

**O** – **Olive oil** (see also EVOO,

 secoiridoids, and n-Tyrosol) (+) ER stress chaperones strong (-) of breast cancer cells

 active ingredients: (+) Unfolded protein response genes

 oleic acid (+) Heat shock proteins

 hydrophilic phenolics (+) ROS

 lignans (+) CR mimetic

 flavonoids (+) c-Fos, c-Jun => (+) AP-1 => (+) polyamine

 secoiridoids metabolism => (-) cancer

 N-tyrosol Epigenetic effects:

 Hydroxytyrosol (+) SIRT1 => ⬇ MT genes, ⬇ Cancer stem cells

 (-) cancer stem cell markers – SKP2 => less

 degradation of tumor suppressors: p27, p57, p21, p130, FOXO1

 (-) HATs

 **Onions**

 **Osho root**

 **Oxaloacetate** *(Eunonymous alata)*(+) FOXO1 and FOXO3  lifespan in model organisms by 15-25% 100mg – 1,000mg/day

 also known as “burning bush” (+) AMPK (-) lung cancer *in vitro*

(-) MMP-9 => (-) tumor metastisis

 (+) Mitochondrial DNA protection

**P – Parthenolide** (-) DNMT

 **Phytannic acid**

 **Piperlongumine** (-) selective apoptosis in cancer cells

 **(***Piper Longum* extract via blockage of antioxidant enzymes

 **Plumbagin** (see Venus (-) HATs inhibited the transition from IEN to poorly differentiated CA

 Flytrap extract and (-) NF-kB binding to DNA in prostate cancer animal model (75%)

 also see Walnuts) (-)AP-1 binding to DNA inhibited UV-induced development of squamous cell CA when

 (-) STAT3 binding to DNA applied topically in animal model of SCCA

 (-) anti-apoptotic factors

 (-) cell cycle progression

 (+) apoptosis via PARP cleavage, etc.

 (-) ROS-induced apoptosis

 **Polyphenols** (-) Nrf2 ⬇ risk of oral, breast, prostate, gastric, ovarian

 Sources: Epigenetic mechanisms esophageal, skin, colorectal, pancreatic, and

 Dietary:fruits,vegetables, olive oil (-) DNMTs => prevents or reverses head and neck cancer

 Drinks – tea, wine hypermethylation of tumor suppressor

 Botanicals – (> 1,000) gene promoter sites

 10 classes:

 flavonoids

 stilbenes

 phenolic acids

 benzoquinones,

 acetophenones

 lignins

 xanthones

 **Pyruvate**  6 gms/day for 2

 months at a time

**Q – Quercetin** (red apples) (-) PI3K

 Epigenetic effects

 (-) DNMT => (-) DNA methylation

**R** – **Rapamycin** (-) mTOR

 (+) Autophagy

 **Red Sandalwood oil** *(Santalum album)*

 active ingredients:

 1. pterostilbene – natural (-) COX-1

 analog of reseveratrol (-) NF-kB

 2. α-santalol (+) apoptosis via Caspace activation

 (+) PARP cleavage

 (+) mitochondrial membrane disruption

 **Resveratrol** (also known (+) Nrf2

 as (+) SIRT ⬇ risk of colon, liver, skin, breast, prostate

 sources: red grape skins, wine (+) cell cycle arrest in cancer cells and lung cancer

 peanuts, mulberries (-) aromatase (better with resveratrol analogs)

 cranberries, japanese (-) quinone reductase 2 (QR2) – better with resveratrol analogs

 knotweed (-) COX2

 (-) NF-kB

 (+) AMPK

 (+) glucocorticoid receptor activation

 Epigenetic mechanisms

 (-) DNMTs – not as strong as green tea, however

 (-) HDACs

 (+) SIRT-1

 **Rosemary Leaf** (*Rosmarinus Oficinalis)*  cytotoxic for ALL, colon, and breast cancer

 active ingredient: camosol

**S** – **Safflower** (see conjugated linoleic acid, aka CLA)

 **Sage**

 **SAHA** (Vorinostat) (-) HDACs

 **Salicylate** (natural, non-acetylated (+) AMPK

 form of aspirin)

 **SARMs (**Selective Androgen Receptor

 Modulators – SARMs)

 **Secoiridoids** (olive oil hydrophilic (+) resveratrol-like gene activation

 phenolics, and other olive oil (+) ER UPR – DnaJ, ERdj, etc.

 derived compounds) (+) mitochondrial UPR – GADD153, Chop, etc.

 (+) Heat shock proteins – Hsp70B, Hsp72, Hsp70t, etc.

 (+) c-Fos and polyamine metabolism

 (+) c-Jun => (+) AP-1 => paradoxic (-) cancer growth

 (+) polyamine synthesis => (+) spermidine => (-) HATs

 (+) polyamine catabolism => (-) tumor cell growth

 (+) SIRT1

 (-) metallothionein (MT) => metal ion homeostasis

 => (-) tumorigenesis and (-) cancer stem cells

 (-) ALDH1A3 gene => (-) cancer stem cells

 (-) Skp2 => (-) UPS for degrading tumor suppressor

 proteins – p27, p57, p21, FOXO1

 (-)LDHA => (-) lactate dehydrogenase => (-) Warburg effect

 **Selenium** Epigenetic mechanism ⬇ risk of prostate cancer and lung cancer

 sources: Brazil nuts (-) DNMTs => ⬇ aberrant crypt foci in the colon and colon polyps

 chicken, game meat (-) HDACs

 beef, garlic

 **Senna leaf**

 **Soybeans** (Genistein, soyasaponins) (-) protein tyrosine kinases ⬇ risk of colon, breast, and prostate cancer

 (-) TGF-beta1

 (+) NAG-1 => 50% reduction in proliferation

 & 6X increase in apoptosis in cancer cells

 Epigenetic Mechanisms of Action

 (-) HDACs => (-) deacetylation of histones

 (-) DNMT => (-) DNA methylation

 (+) HATs

 modulates miRNA

 **Statins** examples: (-) Lymphocyte-function associated antigen epidemiologic studies show risk of Colon CA and melanoma

 Lovastatin (+) miR-33a & b => ⬇ c-Myc expression c-Myc is the most common abnormality found in cancer Atorvastatin (-) geranylgeranylation=>(-)Rho proteins) statins should inhibit all c-Myc up regulated cancers

 Mevastatin risk reduction of colon cancer 30-67% in animal models

 13-17% risk reduction of colon cancer in epidemiologic studies

 10-33% risk reduction of breast cancer in epidemiologic studies

 19-37% risk reduction of melanoma in epidemiologic studies

 13-63% risk reduction of prostate cancer in epidemiologic studies

 0-28% risk reduction for cancer overall in epidemiologic studies

 **Squalene** (-) inhibits colon aberrant crypt foci

**T – Tamoxifen**

 **Trapoxin** (-) HDACs

 **Triphala churna** – made from (-) angiogenesis by (-) VEGR-2 (-) growth of stomach cancer, lymphoma, and pancreatic CA

 3 fruits: *Emblica ooficinalis* phosphorylation

 *Terminalia chebula*

 *Terminalia belerica*

 primary active ingredients:

 chebulinnic acid

 **Turmeric** (Curcumin) (-) NF-kB => (-)COX2, LOX, NOS, MMP-9, uPA,TNF  ⬇ risk of colon cancer with natural curcumin.

 (-) AP-1  ⬇ risk of gastric cancer

 (-) Egr-1

 (-) JNK

 (-) STATs => (-) anti-apoptotic proteins

 (-) angiogenesis

 (-) cytochrome P450

 (+) cell cycle arrest

 (+) apoptosis of cancer cells via Caspace activation

 (-) β-catenin

 (-) PhKinase

 Epigenetic Mechanisms of Action

 (-) HDAC 1,3, and 8 - curcumin given before docetaxel may increase

 (+) HDAC 2 breast cancer response rate to docetaxel via an

 (-) HATs => (-) acetylation of p53, epigenetic mechanism

 RelA (NF-kB), and GATA4 - curcumin given before gemcitabine may increase

 (-) DNMTs => DNA methylation pancreatic cancer susceptibility to gemcitabine

 (+) miR-22 expression => 50 downstream targets

 (-) miR-186 expression

**U** – **Ursolic acid**

**V – Venus Flytrap extract** (*Plumbago rosea)*

 active ingredients: (-) AP-1 anti-cancer effects have been shown *in vitro* 30 drops of Carnivora /3-5X/day

 plumbagin Epigenetic effects but there is no clinical studies to support this claim or 125 μg capsules – 6-9 caps/day

 flavanoids (-) HDACs

 **Vitamin A (**Retinoids) (-) PKC ⬇ risk of colon cancer

 **Vitex** (*Vitex Agnus-Castus)* (+) Caspace induction => ⬇ Bcl-2, cytotoxic for ovarian, cervical, breast 30-40mg/day

 ⬇ Bcl-XL, Bid, Bad gastric, colon, and lung CA *in vitro*

 **VOAS** (Volatile oil if *Radix A. sinensis)*  (-) angiogenesis 30-50 μg/ml

 active ingredient: *n-*butylidenephthalide (-) platelet aggregation

**W** – **Walnuts**

 active ingredients:

 plumbagin inhibits hormone refractory prostate cancer *in vitro*

 **Wild cherry bark** (*Prunus Serotina)* (-) Cyclin D1

 (+) apoptosis via (+) NAG-1 gene

 (-) β-catenin

 **Wild Yam** (Dioscorea Villosa) (-) cell cycle arrest

 ingredients: diosgenin (-) NF-kB, Akt, Cyclin D, c-myc

 (+) apoptosis

 **Wine** (red and white)

 active ingredients

 red - resveratrol (+) SIRT1, (+) AMPK

 white – n-tyrosol (+) FOXO3

 and hydroxytyrosol (+) FOXO3

**Xanthines** (-) mTOR

 examples: (-) PDE

 caffeine (-) TNF-α

 theobromine (chocolate) (-)leukotriene synthesis

 theophylline

**Y – Yellow dock root**

 **Yerba mate**

 active ingredients (-) mTOR

 caffeine (-) PDE

 theobromine (-) TNF-α

 theophylline (-)leukotriene synthesis

**Z – Zerumbone** (-) HDACs

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**The tables and compilations of data in this and the other blog entries in the Two Dragons series are intended to be illustrative of the main points of the blog entry. They are compiled from various sources, in most cases are incomplete, and may contain occasional errors.**

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