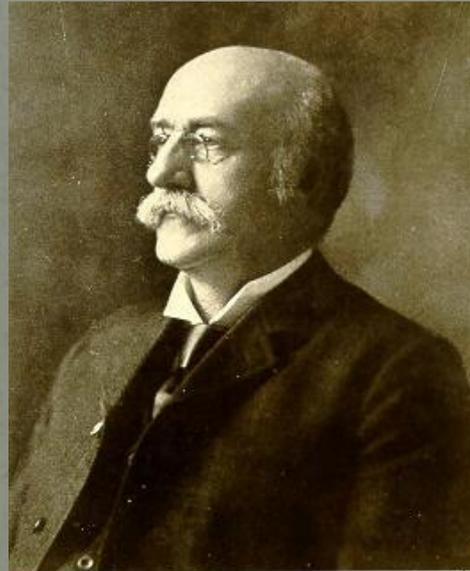


Albert Freeman Africanus King, MD

Scientist/Iconoclast



DR. ALBERT FREEMAN AFRICANUS KING

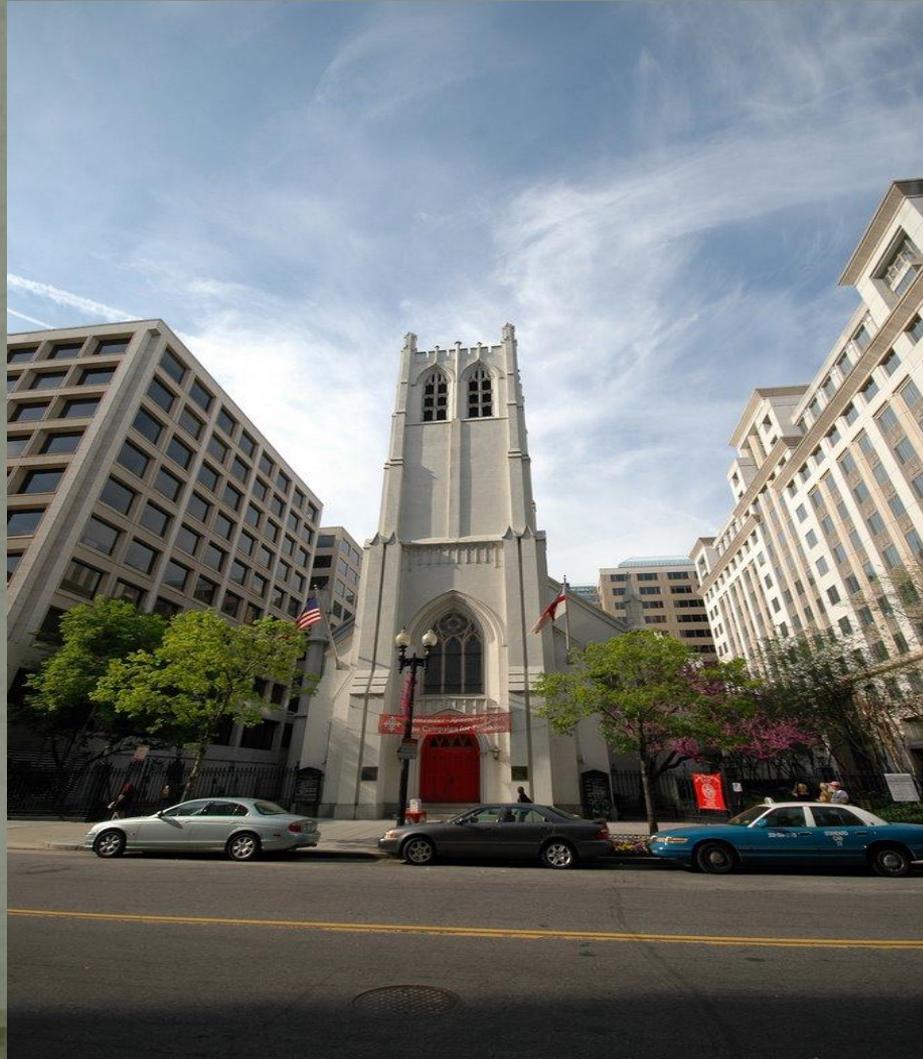
Joseph M Conlon
American Mosquito Control Association

EDUCATION

- **Columbian College of Medicine – 1861**
- **University of Pennsylvania – 1865**
- **University of Vermont**
 - **MSc (Honorary)**
 - **LLD (Honorary)**

Church of the Epiphany

726 13th Street



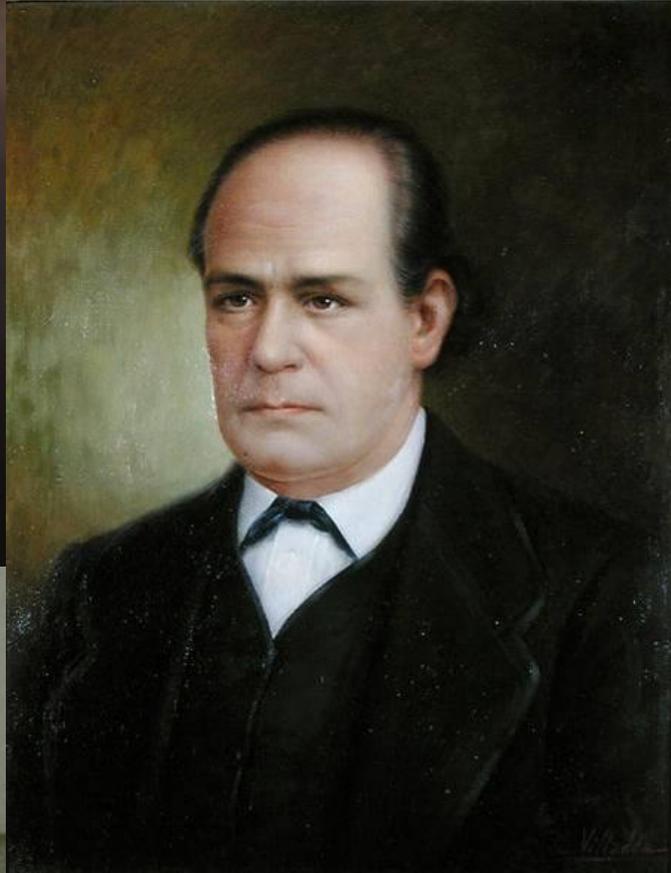
No 262







JOHN CRAWFORD
1746-1813.





Why Mosquitoes Transmit Malaria

“Viewed in the light of the germ theory of disease...it hardly seems possible to ignore any longer the punctures of mosquitoes and other proboscidian insects as possible sources of both infection and contagion”

AFA King, MD

INSECTS AND DISEASE—MOSQUITOES AND
MALARIA.*

By PROFESSOR A. F. A. KING, M. D.

THE animalcular, or insect, origin of disease is not a new idea. It was suggested by Linnæus, by Kircher, and by Nyander, but gained little ground. It received a new impetus after the publications of Ehrenberg on the Infusoria. Later, it received attention in Bradley's work on "The Plague of Marseilles," in Dr. Drake's books on "Epidemic Cholera" and on "The Topography and Diseases of the Mississippi Valley," as well as in Sir Henry Holland's "Medical Notes," and other works.

More recently the researches of Dr. Patrick Manson in China, Dr. Bancroft in Australia, Dr. J. R. Lewis in India, and Dr. Sonsino in Egypt, have tended to show that the mosquito "acts as the intermediary host of *Filaria sanguinis hominis*," and is thus indirectly instrumental in the production of chyluria, elephantiasis, lymph-scrotum, etc. (London "Medical Times and Gazette," January 12, 1878, p. 69; September 7, 1878, p. 275; December 28, 1878, p. 731; and June 4, 1881, p. 615).

Still later, M. le Dr. Ch. Finlay has hypothetically considered the mosquito an agent of transmission of yellow fever ("El mosquito hipoteticamente considerado como agente de transmission de la fiebre amarilla," Havana, 1881; and "Pathogenia de la fiebre amarilla," 1882). These papers were communicated to l'Académie royale des sciences médicales, physiques et naturelles at the dates mentioned. A review of them, by Dr. A. Corre, appears in the "Archives de méd. Navale," tome xxxix, pp. 67-70, 1883, Paris. (See also "Lancet," 1878, i, p. 69.)

Viewed in the light of our modern "germ theory" of disease, the punctures of proboscidian insects, like those of Pasteur's needles, deserve consideration, as probable means by which bacteria and other germs may be inoculated into human bodies, so as to infect the blood and give rise to specific fevers. It has long ago been demonstrated that "malignant pustule" is produced in man by the bite of a fly ("British Medical Journal," January 24, 1863, p. 239). Dr. Budd, in the article just quoted, refers to the greater frequency of this disease in hot, dry summers where insect life is active and teeming; and this, he thinks, would go far to explain the greater frequency of the malignant pustule in Burgundy than in England and the north of France,

* Abstract of a paper on "The Prevention of Malarial Disease, illustrating, *inter alia*, the Conservative Function of Ague," read before the Philosophical Society of Washington, February 10, 1882. For another paper, on "The Conservative Design of Organic Disease," see this journal for June, 1875.

Kings Postulates

1. “Malaria affects, by preference, low and moist localities. Conformably with it we find the mosquito does the same.”
2. “Malaria is hardly ever developed at temperatures lower than 60° F. A temperature of 60° F is necessary for the development of the mosquito.”
3. “The evolution or active agency of malaria is checked by a temperature of 32° F. The mosquito is killed or paralyzed by a temperature of 32° F.”
4. “Malaria is most abundant...as we approach the equator and the sea coast. This is also true of mosquitoes.”

Kings Postulates

5. “Malaria has an affinity for dense foliage, which has the power of accumulating it when lying in the course of winds blowing from malarious localities.”
6. “Forests or even woods have the power of obstructing or even preventing its transmission in the circumstances. This is also true of mosquitoes. Winds bearing a colony of mosquitoes should be screened or sifted out of its insect burden by passing through foliage...is certainly more comprehensible than the conception of a malaria vapor being so screened by its affinity for foliage.”
7. “By atmospheric currents malaria is...transported...distances as far as 5 miles; so certainly is the mosquito.”

Kings Postulates

8. “Malaria may be developed in previously healthy places by turning up soil and making excavation... These create pools as breeding places for mosquitoes. “
9. “In certain countries malaria seems attracted and absorbed by bodies of water lying in the course of winds...from the miasmatic source. There is no absorption of the miasma by water but that when bodies of water are of large area the mosquitoes are unable to travel across them.”
10. “In proportion to countries, previously malarious, are cleared up and thickly settled, periodic fevers disappear. In such areas swamps and pools are drained so that the mosquito cannot...find a suitable place to deposit her eggs.”

Kings Postulates

11. “Malaria keeps near the surface of the earth – so does the mosquito, but when movements of air currents carry the miasma up ravines for 1000 feet so can the air carry mosquitoes.”
12. “Malaria is most dangerous when the sun is down...the marsh vapor theory...is unsatisfactory. With regard to the mosquito...it is well known that...after sunset and at night it indulges its bloodsucking proclivities.”
13. “The danger...is increased by exposed sleeping in night air. ...while awake the person exposed will move about or brush away the insect while he will submit to be bitten during sleep.”

Kings Postulates

14. “...fire both indoors and...out affords security against malaria. Fires attract and destroy mosquitoes, protecting persons in the immediate vicinity.”
15. “The air of cities in some way renders malaria poison innocuous; though the disease may be raging outside, it does not penetrate far into the interior...mosquitoes will be arrested by walls and houses and attracted by lights...in the suburbs...so that many will be prevented from penetrating far into the interior.”
16. “Malarial diseases are most prevalent towards the latter part of summer and in the autumn...mosquitoes are more numerous during late summer and autumn.”

Kings Postulates

17. “Malaria is arrested not only by trees, walls, etc, but also by canvas curtains, gauze veils and mosquito nets. It is almost needless to add that, while these nets, curtains, etc., can hardly be conceived to intercept marsh air, they certainly can and do – intercept mosquitoes.”
18. “Malaria...affects infants much less frequently than adults. Young infants...are...carefully housed and...their beds and cradles are protected with mosquito curtains.”
19. “Of all human races, the white race is most susceptible to marsh fevers, the black least. Repeated attacks of malaria leads to melanotic darkening of the skin.”

Malaria Prevention

“If the mosquital origin of malarial fevers be correct and if protection from mosquital inoculation protects from ague the means of prophylaxis from malarial disease will not be difficult. It comprises the following items:”

- **Personal protection**
- **Domiciliary protection**
- **Municipal protection**

Personal Protection

- **Physical barriers**
 - gauze curtains
 - window-screens
 - clothing
- **Repellents**

Domiciliary Protection

- **Exterior barriers**
 - Screens of trees, walls, fences
 - Fires, lamps, or electric lights - to act as traps
- **Interior of dwellings**
 - Smoke - tobacco or pyrethrum
 - Aromatic oil – camphor

Municipal Protection

- **Draining swamps and pools**
- **Planting of forests**
- **Cordons of electric lights**

A Man of Ideas

- **Melanin as a protection from malaria**
- **Measles, etc.**
- **Cancer causation**

St Thomas Circle

1315 Massachusetts Ave NW



A MANUAL
OF
OBSTETRICS.

BY

A. F. A. KING, A. M., M. D., LL. D.,

*Professor of Obstetrics in the Medical Department of the George Washington University, Washington, D. C., and in the University of Vermont;
President (1885-86-87) of the Washington Obstetrical and Gynaecological Society; President (1883) of the Medical Society of D. C., and of the Medical Association of D. C., 1903;
Fellow of the British Gynaecological and of the American Gynaecological Societies;
Consulting Physician to the Children's Hospital, Washington, D. C.;
Obstetrician to the George Washington University Hospital;
Member of the Washington Academy of Sciences; Fellow of the American Association for the Advancement of Science; Associate Member of the Philosophical Society of Great Britain; and Member of the Medical, Philosophical, Anthropological, and Biological Societies of Washington, D. C., etc.*

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“What product of man’s art has not been anticipated by nature?”

