

987 words

Re: Cuban Diplomat Symptoms and Radiofrequency Radiation

For the “mystery” illness striking US and Canadian diplomats to Cuba,¹⁻³ that “has confounded the FBI, the state department and US intelligence agencies”³, sonic explanations have dominated media reports¹⁻⁵ – but are justly rejected by experts^{2,3}. Greater attention to a different explanation may aid identification of causative devices and culpable actors, and improve efforts to protect future diplomats, and to care for those currently suffering: Radiofrequency/microwave radiation (**RFR**) accommodates reported facts, including peculiar ones.

The profile of symptoms in diplomats²⁻⁶ matches that reported from pulsed RFR⁷⁻¹², encompassing insomnia, headaches, tinnitus, hearing loss, cognitive problems, nausea, fatigue, dizziness, with speech, balance and vision problems in smaller subsets. Brain injury¹³ and swelling¹⁴⁻²⁸, reported in diplomats, are supported in persons with RFR symptoms. The high proportion of diplomats affected suggests greater intensity of RFR pulses.

The prominence of auditory symptoms and strange noises in diplomats’ reports likely launched the sonic theory, and these idiosyncratic features are key to winnowing potential causes. Symptoms like headache and fatigue occur in many settings; tinnitus and hearing loss are far more distinctive. Yet these are similarly prominent in people reporting symptoms from RFR^{7,8}, cited by 80% and 34%, respectively of >200 such individuals in a survey we conducted²⁹.

Sound comes from air-pressure waves; radiation from electromagnetic waves. And diplomats reported sound -- ringing “or a high pitched chirping” or grinding². Just such sounds arise with RFR via the “Frey effect”^{30,31}. As reported in *Bioelectromagnetics* (Elder and Chou 2003), these occur with RFR in the 2.4-10,000Hz (cycles/sec) range³⁰ and can resemble sounds “such as a click, buzz, hiss, knock, or chirp” just as diplomats report. Ability to hear RF-induced sounds at all depends on high frequency hearing, and on low ambient noise³⁰, which fits reports that only some diplomats heard any sound, often at night. The primary pitch heard (*sound* frequency), relates not to the *radiation* frequency (cycles/sec), but to head dimensions³⁰: thus different sounds heard by different diplomats may result from the same radiation. Induction of sound is not governed by the *average* radiation level, but the energy in a single pulse. (Analogously, if a jackhammer hit at 2 minute intervals, the low time-averaged pressure would not explain the effects produced.) Injury also depends on the pulse (vs average intensity); high prevalence of Frey-compatible sounds and of health effects suggests pulses of high intensity. Monitoring for culpable radiation sources must sensitively capture *pulsed* radiation—and in the 2.4-10,000cycle/sec range.

{A candidate sound has now been *recorded* – as Frey-effects could not - that one ear-witness “identifies” (from a suspect line-up of one)³²; but it manifestly departs from sounds others report, and there cannot be confidence it relates to the injury.}

Evidence for health effects of RFR is not new. A 1971/2 Naval report bearing >2300 citations³³, many from Russia and Eastern Europe, already documented health effects of microwave/RFR, emphasizing “non-ionizing radiation at these frequencies”³³. (Contrary to prevailing mantra, radiation that is not “ionizing” also causes health effects: evidence, recently affirmed, is of longstanding.) Entire sections were devoted to symptoms diplomats now report, including insomnia, headache, fatigue, cognitive problems, and dizziness.

It may seem counterintuitive that something we cannot see or feel can cause injury. Consider: sunburn (and blindness) arise from “ultraviolet” radiation from the sun, even though we evolved to better expect *that* radiation. (Sunburn affects skin, and redness can be seen – but it is not yet seen or felt while the initial injury occurs.) For sunburn, as for RFR, people vary in vulnerability, due to genetics, *and* environment effects on “oxidative stress”. (Antioxidant intake – e.g. cocoa - has been shown to increase the amount of UV required to produce redness³⁴.) Oxidative stress (a kind of injury affecting cells and genetic material that “antioxidants” defend against) – is implicated in sunburn - in damage from radiation in the *ultraviolet* part of the frequency (cycles/sec) range – but also in damage from gamma radiation, x-ray radiation, extremely low frequency radiation -- and RFR. In an analysis of 100 studies examining if low-level RFR produced oxidative injury, 93 found that it did³⁵. And a role for oxidative stress in RFR health effects is cemented by evidence that those experiencing symptoms from usual-RFR exposures are significantly more likely to harbor gene variants that provide less-avid protection against this injury³⁶. Additionally, persons with symptoms from usual-RFR are consistently deficient in a specific antioxidant³⁷ shown to be particularly vital for defense against oxidation damage from radiation³⁸⁻⁶⁵, including RFR⁶⁶⁻⁷⁸.

While scientific “skepticism” about RFR injury exists, it is of the industry-fueled stripe⁷⁹⁻⁸² (think tobacco). Most (67%) nonindustry-funded studies affirmed, while most (72%) industry-funded studies denied biological effects of RFR (analysis by **Dr. Henry Lai, U Washington**). For a précis of the impact of conflict-of-interest on medical information, see <http://thesciencenetwork.org/programs/beyond-belief-candles-in-the-dark/beatrice-golomb>⁸³.

For diplomats, causative RFR could emanate from communications/monitoring devices, electronic weaponry, or conceivably “innocent” sources – such as those reported to trigger cognate symptoms in nondiplomats reporting similar effects from increasingly prevalent RFR technologies – in (e.g.) the US^{13,84}, Korea⁸⁵, Turkey¹⁰, Israel⁸⁶, Australia⁸, France³⁷, England⁸⁷, Italy³⁶, Switzerland^{12,88}, Austria⁸⁹, Sweden⁹⁰, Norway (afflicting 3-time Prime Minister Gro Harlem Brundtland)⁹¹, Finland (affecting former Nokia Chief Technology Officer Matti Niemela)⁹² -- and Canada (where Frank Clegg, formerly head of Microsoft Canada, now of Canadians for Safe Technology - spearheads the effort toward recognition⁸⁹).

Use of RFR on diplomats may not be new (though, use of *pulsed* radiation may be). The US embassy in Moscow was radiated with microwaves from 1953-1988⁹³, spawning possible health effects – and shielding efforts⁹³.

The RFR “hypothesis” explains – and makes testable predictions: Some diplomats will develop new intolerance to previously tolerated radiation sources. Some will experience heart symptoms. And effective RFR shielding in homes/offices may thwart occurrence in future diplomats to Cuba, provided homes/offices are the sole target.

Perhaps attention to Cuban diplomats’ plight can ignite awareness of the many others beset by similar problems. Meanwhile, research already documenting compatible health effects of RFR may inform those caring for Cuban diplomats, and those in pursuit of causative devices.

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