

[Translation from the German: "Mikrowellensmog und  
Waldschäden - Tut sich doch noch was in Bonn?"

### **Microwave Smog and Forest Damage - Movement in Bonn After All?**

by Dr. Wolfgang Volkrodt, Engineer, Bad Neustadt [F.R.  
Germany]

He was the first to point out possible correlations between microwave radiation and forest deaths. Since 1980 he has been trying to alert the authorities and the public alike. Much like Dr. Nieper in Kat, his only goal is to bring about the initiation of research. If investigations to determine the nitrate content of Bavarian radish (no joke!) can be commissioned, one could well expect to see research regarding the connection between forest deaths and microwaves. Finally, Dr. Volkrodt's relentless petitions at the governmental and parliamentary levels have resulted in the first "expert" conference in the Töpfer Ministry. Apparently this meeting was a catastrophe, because the participants had to admit that none of the experts had the faintest clue about the damaging effects of electromagnetic fields. Now, the intention is to go on a research binge until 1994. Yet it remains unclear who investigates what with what. Obviously the usual Töpfer ploy: Make it look good. (See also raum&zeit No. 47 "Das tapfere Töpferlein" [The brave little Toepfer/potter: play on words: Toepfer, noun = potter].)

Those who have paid attention while reading the most recent forest damage reports might possibly balk when coming across the statement, "'Acid rain' is not judged the sole cause of the new type of forest damage. There must be additional culprits." At the same time, though, it seems clear that the soil acidification in Central Europe has increased

significantly during the past decades. Paradoxically, this is even true for typically clean-air regions which, as a consequence, evidence only traces of 'acid rain'. This poses the seemingly puzzling question of how soil can become acidic in the absence of chemical precipitation from the air. Are there still other processes which may lead to changes in the ion balance? The answer is yes; for example, electrolysis. This requires that there exists in the soil an electric current which creates ion movement through the depositing of electrons on water soluble minerals suspended in solution. The entity which we then measure as pH-value is in fact the negative common logarithm of the concentration of hydrogen ions, i.e. cations.

#### **Electrolysis in forest soil**

How can an electrical current pass from the environment into the soil? In this regard there exists an interesting hypothesis. Regrettably, and due to the absence of relevant research projects, it has so far not been proven with scientific precision. It has been observed that a new type of forest damage occurs in conspicuous concentrations specifically within the irradiation area of radar and directional radio transmitters. Already in 1987, A. Hüttermann made the following statement: (1)

"Beyond question, the territory of the German Federal Republic has a high installation density of transmitters in the areas of radio, television and also radar. There can also be no doubt regarding the fact that electromagnetic emissions are 'received' by the trees, as well as their needles and leaves. Clearly, one may assume that there is an interaction with the electromagnetic waves. Of course, the leaves and needles and the entire trees do not constitute optimal electrical conductors. However, it can be demonstrated with very simple experiments that they do

receive electromagnetic waves, and that this reception induces a flow of electrical charge carriers in the needles and leaves."

The following citation is excerpted from a statement (2) (3) issued by the Bundesamt für Strahlenschutz [Federal Radiation Protection Commission] (BfS), on the occasion of the 99th Commission meeting on 27 September 1990: "In plants or other biological objects, the absorption of high frequency energy is dependent upon the object's size, shape and position in relation to the outer [radiation] field. This may lead to resonance-related increases in [energy] absorption which, in the example of needles and leaves on trees exhibit a maximum factor of 3 within the range between 2 and 20 Ghz."

The indicated frequency range is typical of directional radio and radar installations. The referenced BfS statement indicates standard guideline values for power flow densities of microwave radio installations. In conventional directional radio installations as operated by the Federal Post Office's Telekom branch in the transmission of telephone or television services in an almost seamless network area coverage in Germany, a power flow density of 1 to 100 microwatts per square meter must be used as a base value for the directional radio links.

[photo captions]

Fig. 1: The spy tower on the Würmberg opposite the Brocken mountain in the Harz range. The radar dome is visible above; the surrounding forest is dead.

Fig. 2: Old radar domes on the

Wasserkuppe in the Rhön range. In the spring of 1984, this installation succeeded in 'murdering' the forest on the Stirnberg mountain some 3 miles away.

Fig. 3: The spy tower with integrated radar on the Schneeberg mountain in the Fichtelgebirge range. The forests died not only in the Fichtelgebirge, but also in the western Erzgebirge range.

Could the soil acidification which is being found repeatedly, even in clean-air regions, have electrolytic instead of chemical origins? Here a relevant, if substantially simplified mathematical example: We shall assume a relatively low power flow density of 10 microwatts per square meter. We shall further assume that a part of the radiation energy is received by a stand of 100 trees, each having approx. 100 square meters of combined leaf surface, and that this energy is converted into conductive electrons which subsequently collect ions and pass into the soil, carrying the ions with them. Within 10 years of exposure to the directional radio energy, the seemingly minute .1 watts received by the group of trees adds up to 8.8 kilowatt hours. This energy is sufficient to yield, through molecular fission by electrolysis, 2,000 liters of hydrogen gas from water. This example is intended as a reference value only for purposes of illustration.

In actual fact, a change in ion balance occurs in the soil which is measured even in clean-air regions as "acidification". It not only disturbs the mineral management of the affected trees, but also retards the activity of soil organisms.

Based upon the interpretation by the BfS, the foregoing example assumes that the energy from high frequency fields captured by the trees leads to a shifting of free charge carriers in tree and soil. Since the electrical permeability of, for example, cell membranes is dependent upon the direction of the current, the result is a kind of rectification of the charge carrier flow.

#### **Fateful radar emissions**

"Air control and military radar installations are most often operated with pulse power readings of several million watts. Power flow densities of up to 10 watts per square meter can occur in the beam path within distances of up to several hundred meters," the BfS writes. However, because the high, short-term peak power readings are averaged over the time curve which includes the radiation-free time periods, the above-mentioned value is considerably ameliorated. Still, the cited power flow density of 10 watts per square meter is a million times higher than that of directional radio emissions.

In our example for directional radio with a power flow density of 10 microwatts per square meter, we determined an energy of 8.8 kilowatt hours over an exposure of 10 years, which would suffice to generate 2,000 liters of hydrogen by means of electrolysis. In the case of radar operating at 10 watts per square meter, the energy received by the stand of trees in our example is increased to 100 kilowatts, which over an exposure period of 10 years would accumulate to 8,800,000 kilowatt hours, which converts to 2 million cubic meters of electrolytically fissioned hydrogen. An unbelievable [here meaning :monstrous] figure!

Many are of the opinion that the very short, needle-like radar pulses are biologically far more disastrous than the

constant emission level associated with a directional radio link. Be that as it may: military radar appears to constitute a special threat to our environment, accountable for far more severe damage than directional radio. In the course of the 'cold war', West and East Germany were blanketed with a multitude of radar installations. It follows that these deserve our special attention as possible culprits in the occurrences forest damage.

### **Deficiencies in Research**

Due to [repeated] relevant petitions, the topic "Damages through electromagnetic radiation" has been kept alive before the Petition Committee of the German parliament since about 1987. In a letter of 19 April 1990, Dr. Kemmer of the Federal Ministry for Environment, Nature Conservation and Reactor Safety (BMU) states that "the entire spectrum is so multilayered that comprehensive scientific evaluation would require long-term studies. The [current] fragmented research is insufficient."

On 10 August 1990, the BfS publicly tendered several research projects which are to effect "Investigations into the Mechanisms of High Frequency Emissions" within three years. In the course of this work, reliable data on the cell membrane effect under pulsed high frequency energy i.e. radar is to be gathered (4).

The simple fact that only now research projects for the clarification of negative biological effects on man and environment are commencing, proves that all previous publications related to forest damage through electromagnetic emissions have lacked a scientific basis and were of a purely speculative nature. This is true also of the most recent publication in the Bundesanzeiger [similar

to U.S. Congressional Record) in early 1991, entitled, "Directional Radio and Radar Emissions Do Not Cause Damage to Forests". Who is responsible for such unscientific publications? Perhaps a lobby which fears compensation payment for forest damage caused by its constituents? During the last three or more years, a period during which research activities became more systematic, no one is willing to admit to having been the author of such false claims which were issued merely in an effort to gain time.

Meanwhile, the death of our forests continues unabated despite a reduction of the pollutant  $\text{SO}_2$  to a third [of its former value], and despite the fact that no further discernible increase of  $\text{NO}_x$  in the air is being measured. In this context it is unclear whether  $\text{NO}_x$  actually leads to the new type of forest damage or whether, as has been stated repeatedly, it acts as a fertilizer and actually promotes prolific growth to sections of forest. (5) It is inappropriate to have to wait still more years in order to obtain a clear answer to the question of whether the manifold proliferation of directional and radar installations during the past decades could possibly be the fundamental cause of the appearance of new kinds of forest damage. In the meantime, however, occasioned by the elimination of the border with the former German Democratic Republic (DDR), there is a chance for a quick, indirect way of proving the case.

#### **At the end of the "Cold War"**

A large number of "spy towers" were built by the West and the East in the mountain ranges on both sides of the former border with the DDR. They served as observation posts for the enemy's telephone and radio traffic, but also for the purpose of detecting military ground and air movements by

means of radar. Figures 1, 2 and 3 show the construction types typical of these installations. The map in Fig. 4 shows the locations visited by the author since approx. 1987, where, with the help of photos, he documented the new forest damage that was especially conspicuous there. (See also raum&zeit No. 26 "Wer ist wirklich schuld am Waldsterben?" [Forest Death -- Who Is Really Responsible?])

A documentation consisting of 32 such photographs was evaluated by the Federal Ministry for Environment, Nature Conservation and Reactor Safety (BMU). The subsequent statement by the BMU dated 27 November 1990 offers the opinion that "the photographic documentation could not withstand scrutiny in all cases." In other words: But in most of the cases it was convincing! The exceptions apparently concerned those photographs in which the degree of forest damage was not clearly visible a problem common to all such types of photo documentation.

[caption]

Fig. 4: Locations of high-powered microwave transmitters:

- 1) Großenbrode/Fehmarn
- 2) Teufelsberg/Berlin
- 3) Würmberg/Harz
- 4) Stöberhai/Harz
- 5) Ravensburg/Harz
- 6) U.S. Installation Hoher Meißner
- 7) Wasserkuppe/Rhön
- 8) Schneeberg/Fichtelgebirge
- 9) Ochsenkopf/Fichtelgebirge
- 10) Arber/Bayrischer Wald
- 11) U.S. Radar Feldberg



Today the many spy towers situated in the midst of a united Germany have lost their purpose (6). In addition, it is conceivable that the Gulf War necessitates the assignment of the specialists trained in modern electronics to other locations, instead of keeping them here.

During recently carried out inspections of former USSR installations on the Brocken/Harz and the Beerberg/Thüringer Wald, it appeared that the installations are powered down and that the radar and directional radio transmitters are inactive. The forest, with parts of it having been irradiated by these installations for two to three decades, now has a chance to regenerate.

In contrast, during late summer last year, it was not as obvious whether the military microwave transmitters were still operating on the Würmberg/Harz and the Schneeberg/Fichtelgebirge, both being surrounded by dead forests in their path of transmission. However, by now the local forestry authorities should be apprised whether these towers are still staffed or have been shut down.

Attention is now the watchword: Will the heretofore damaged forests begin to recover, or will they continue to waste away in the course of the coming years? Such findings are also of interest to the civic administrations of health resorts such as Braunlage, Bad Harzburg/Harz or Bischofsgrün/Fichtelgebirge. They wish to be accepted without reservation as climatic health resorts once again. The assumption on the part of visitors, that [because of the visible forest damage near these towns] the air in the vicinity of the health resorts must be extremely polluted, has done great damage to the image of such places. It is a blemish which they want to erase as soon as possible.

### Identification Criteria

The forestry authorities in charge of areas exhibiting new types of forest damage can be material in identifying a spying or radar installation, a leftover from the 'cold war', as the culprit. In doing so, they should be careful to ascertain the following criteria:

1. Is the spatial distribution of the area with the most pronounced forest damage congruent with the sweep area of the irradiating radar and directional radio transmitter?

Similar to automobile headlights, directional radio transmitters send out a straight radiation beam in the direction of the open parabolic antenna dish. [In contrast, In most radar installations, the beam describes a circular sweep pattern with the radar dome (radome) being its vertical rotation axis. If one is able to see the radar dome with binoculars from a neighboring mountain ridge, then it may be assumed that that area of the forest has been exposed to radiation.

2. What was the year in which the 'spy tower' or similar installation was erected and activated? When was the initial new-type forest damage recognized?

3. What is known about the concentration of air pollutants within the damaged forest area? Were they, as may be expected in the vicinity of recognized climatic health resorts, lower or significantly higher than in, for example, the [industrialized] Ruhr district, where the occurrence of the new type of forest damage is relatively low?

4. If it can be determined that following the shut-down of a spy tower, the surrounding forest begins to regenerate, then there will remain hardly a doubt that the microwave

installations erected during the past decades within the framework of the 'cold war' are to a great extent responsible for the new forest death.

### **Filing Reparation Claims**

Can the investigations described above be useful to public and private forestry authorities? They can indeed! In court action up to now, forest holders such as the City of Augsburg seeking compensation for forest damage were met with the [major rejecting] argument that the primary perpetrators of such damage had to be concretely identified by name. Such identification has not been possible, heretofore. The 'acid rain,' the court held, was caused by an anonymous mass of culprits made up equally of power stations, motorists and domestic heating systems.

If it can now be determined beyond doubt that the spying and similar microwave installations erected and operated within the auspices of the 'cold war' have caused the new type of forest damage, then the accused can be labeled with names like NATO or US-NSA [this should be NVA - Nationale Volksarmee, the former East German military]. This means that these parties will have to face their responsibilities in the repercussions of the 'cold war' and make restitution. Incidentally, since mid-1990, under file number Pet 1-11-05-0-41168, the Petition Commission of the Bundestag (German parliament) has been dealing with the question of such compensatory payments.

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