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"She's engaged in microwave research:

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Effects on behavior interest Harper professor

by MONICA WILCH

Red tape sometimes has advantages.

Like the red tape that has prevented Dr. Susan Korbel's scientific equipment from being sent to her at Harper College.

If it had accompanied her here from the University of Arkansas a year ago, it would have burned in the fire that gutted Harper's fieldhouse last summer.

And that would have constituted a serious setback for microwave research, in which Dr. Korbel is a leading expert.

An associate professor of psychology at Harper, Dr. Korbel has for the last 10 years been studying the behavioral effects resulting from low levels of microwave radiation.

Her work has more recently come into the spotlight because of the development of the microwave oven and subsequent concern over its safety. But, she points out, Americans have long been surrounded by low-level microwave radiation in the form of radio and TV signals and other communications systems.

BUT THE OVENS are the main reason for the sudden interest of government, industry and the public in the standards for microwave exposure. The national standard is 10 milowatts maximum, while specific standards for microwave ovens have — arbitrarily, according to Dr. Korbel — been set at 5 milowatts around the oven door.

"I've done work on rats at levels as

low as .15 milowatts and found effects," she said. "The rats became very lethargic, more emotional and more prone to seizures." When she subjected them to electric shock, they stayed in the seizure longer than the control rats, she reported.

Further tests revealed that rats exposed to low levels of microwaves were hampered in learning, and displayed increased adrenal weight — a sign of stress, Dr. Korbel said.

Most sobering of all her findings were indications that the effects of exposure are accumulative — contrary to what the manufacturers of microwave ovens have been assuring the public.

WHILE DR. KORBEL'S study has involved, for the most part, microwaves of lower frequencies and powers than those used in the ovens, she said the higher frequencies have not been investigated to any significant extent at all.

For that matter, she said, no one has even measured UHF power to determine the degree of daily exposure people in any given location receive. However, she mentioned an unconfirmed report that someone recently did this in a New York City skyscraper and found microwave radiation over the 10-milowatt standard — presumably from communications equipment.

"I wouldn't say 'Let's not have any more communications,'" Dr. Korbel quickly added, "but we should be aware of any potential problem." For this rea-

son, she doubts microwave use will be greatly expanded in the near future — although it has been experimentally used on other home appliances such as dishwashers and in burglar alarm systems.

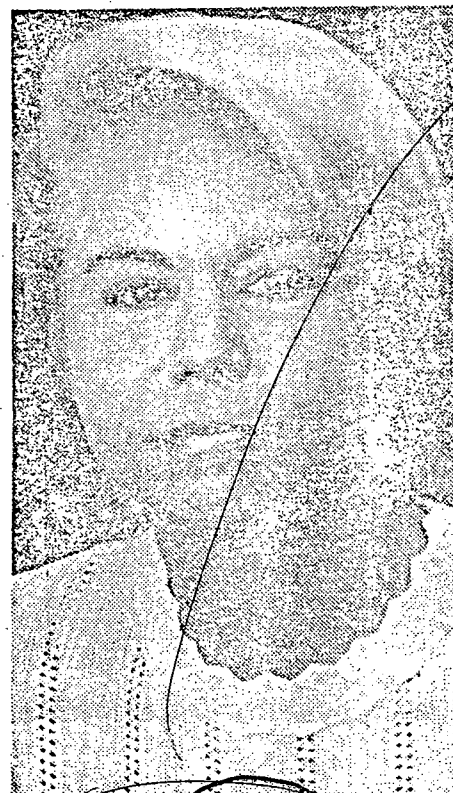
WHILE THE industries concerned with marketing microwave ovens — and perhaps other microwave appliances — continue to insist that microwaves do not have cumulative effects, Dr. Korbel denies the validity of their claims.

"They're always emphasizing tissue damage — but you can get drastic effects without affecting tissue. And the behavioral effects are accumulative."

One theory that has been advanced to explain the accumulative effects of low-level microwaves is that of a biochemical change.

"The Russians showed a definite biochemical change in rats and rabbits exposed to low-level microwaves," Dr. Korbel said, adding with a chuckle that the Russians "saved my neck" by reporting their findings of biochemical changes several days after she had, with some reservation, presented her theory to scientists in this country.

THE RUSSIAN experiments with microwaves have played a significant role in the oven controversy here, with such experts as Consumers Union quoting the Russian data to urge stricter standards, and microwave oven proponents pooch-pooching the Soviet experiments as invalid.



DR. SUSAN KORBEL, psychology professor at Harper, is a member of the American National Standards Institute committee re-evaluating microwaves.

Dr. Korbel, whose specialty is experimental design (the setting up of variables and controls to produce a valid experiment) has had some opportunity to evaluate the Russians' work and declares it to be "very good."

In the early '60s information was available on Russian experimental methods, Dr. Korbel said. But last year a colleague of hers from the University of Washington visited a Russian lab and was able to report to her on the design, methods, and equipment they used in their microwave experiments.

But what are the implications of all this for human beings?

ACCORDING TO DR. Korbel, further research into theories of microwave-induced biochemical changes "might show some physiological effects — we just don't know yet. You might not need an ionizing (X-ray) wave to damage tissue."

As for translating experimental findings with rats into human terms, Dr. Korbel cautioned that correlations should not be made without basis. However, some experimentation with humans has been done by the Russians, she said, who did find behavioral effects similar to those in rats. Reportedly, a similar study is being conducted by a Florida scientist.

Meanwhile, Dr. Korbel said, it appears that the U.S. standard for microwaves will stay at 10 milowatts for awhile.