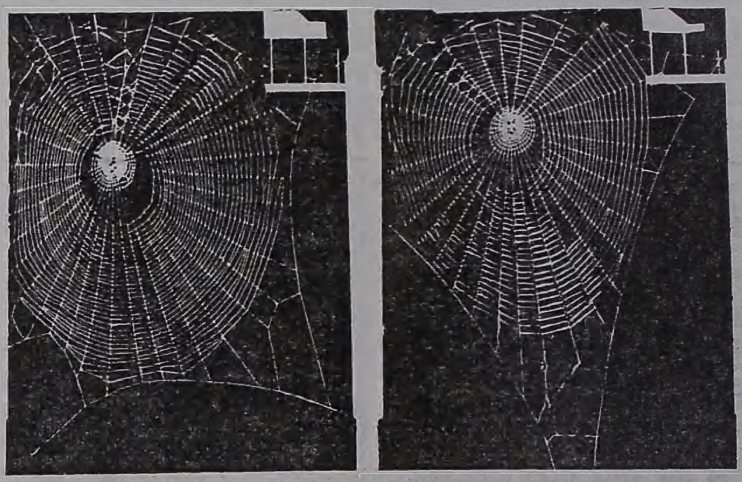
'Tangled Web' Helps Drug Testing

SEATTLE — In E. B. White's fantasy *Charlotte's Web,* the heroine advises a human to stop rushing about to no purpose and live like a spider. Spiders, notes Charlotte, spin beautiful webs, then hang upside down on them in quiet contemplation, living a far more peaceful life than unfortunate human beings.

In experiments at the State University of New York Upstate Medical Center in Syracuse, Dr. Peter N. Witt has demonstrated that drugs which turn human perception topsy-turvy can also throw the peaceful, contemplative life of the spider out of kilter. Specifically, he has noted bizarre derangement of web-building patterns in arachnids fed the hallucinogenic drug psilocybin.

Reporting to the American Society for Pharmacology and Experimental Therapeutics here, Dr. Witt said he believes these experiments are useful in elucidating various abnormal mental states. "Humans are too unpredictable and affected by too many factors to be valuable as prime subjects," he said. "Spiders, however, given only a few basic conditions, can be depended upon to follow their instinctive routine to the best of their ability."



WEBS SPUN before and after spider ingests psilocybin. After the hallucinogen, the web is smaller, but the mesh size is larger.

Dr. Peter N. Witt

Forty-six *Araneus diadematus Cl.* spiders spun control webs which were then sprayed with white glossy paint and photographed. Next, 150 mg./kg. of psilocybin (synthesized from the mushroom *Psilocybe mexicana)* was administered by mouth in sugar water. Under the influence of the drug, the spiders spun webs with fewer spiral turns. The webs also were smaller, although the meshes were larger.

The drugged spiders moved about as though they were weighted. Therefore, Dr. Witt glued a small lead weight on each spider's back, increasing its weight by 23%. Webs spun by weighted spiders not given psilocybin showed a striking similarity to those spun under the drug's influence. This finding led Dr. Witt to believe that the drug may make the spider feel heavier, particularly since humans under the influence of the hallucinogen undergo a change of body image.

Dr. Witt is not alone in considering the spider useful as a laboratory subject. For example, his theories have been upheld by Dr. Nicholas Bercel of the University of Southern California, who has demonstrated that serum from schizophrenic humans is capable of disrupting the web-spinning patterns.