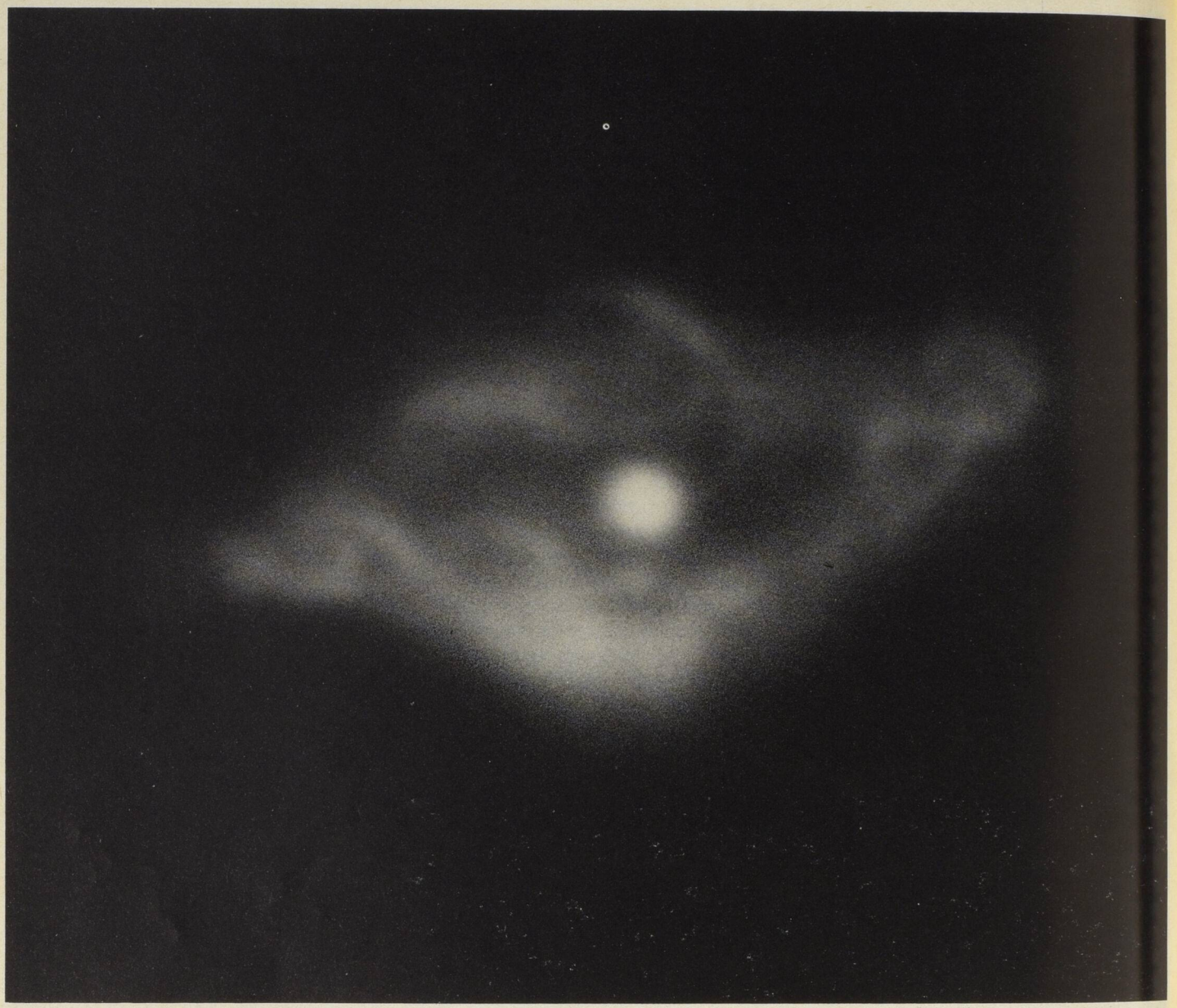

The accretion disc, according to the model, is overloading, sending streams of matter spraying perpendicularly off the faces of the disc in opposite directions. At the same time, the other star in the binary causes the disc to precess or wobble about the dark star. Each full wobble takes 164 days and, if we are observing the system edge-on from earth, then the schizoid nature of SS433 can be explained as a projection effect. When one matter beam, say the "upper" one, is angled toward us, it has a component of rapid approach, while the lower beam simultaneously exhibits a component of rapid retreat. From earth, each beam will appear to approach, stop, retreat, then repeat the cycle, every 164 days.

But not all astronomers accept this model of the two beams. If a neutron star or black hole could perform such antics, perhaps something equally eccentric could exist — say a solitary black hole focussing material reflected back from a supernova explosion. This material then forms an accretion disc which glows like a star before being ejected into space in the form of two beams.

Further work by Ernest Seaquist of Toronto added to the growing bank of information on SS433. Using the Einstein X-ray satellite, he and colleagues at Harvard University made detailed studies of the star system and the surrounding supernova remnant. Their work demonstrated that the beams reach across the gas cloud, exerting sufficient force to push bulges into an otherwise symmetrical sphere. These findings raise further questions of how the beams sustain their energy across such vast distances. Even more significantly, the confirmation of the beams' existence fails to explain *how* they exist.

Surrounding SS433 is the supernova remnant W50 which has been distorted "out of round" by pressure from the jets emanating from SS433. *(Graphic: John Bianchi)*

Entourant SS 433, le reste de supernova W 50 a été déformé par la pression exercée par les jets de matière émanant de cet astre. *(Illustration: John Bianchi)*

How do streams of gas emerge *from* a neutron star or black hole and what mechanism focusses them so narrowly? They appear to be only 20° wide at their source and maintain that tight structure the 274 light years it takes to cross W 50.

Interest in the SS433 continues as astronomers seek to probe the secrets of this "stellar schizophrenic". Since the jets are related to a similar phenomenon observed in quasars, SS433 may provide answers to other unresolved questions. □

Stephen A. Haines