Extract from

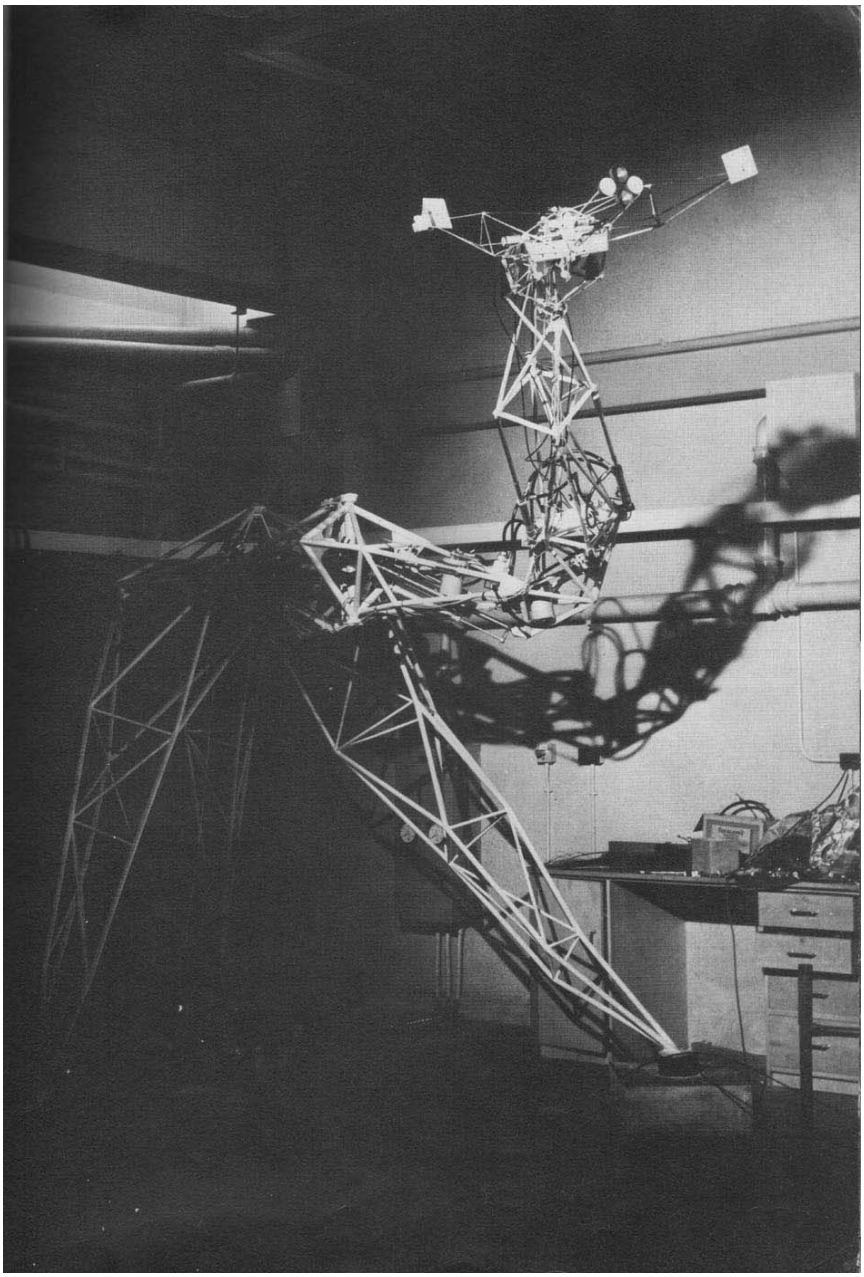
Robots: Fact, Fiction + Prediction

Jasia Reichardt

p56, Thames and Hudson, 1978

Edward Ihnatowicz's cybernetic sculpture *The Senster* was constructed in 1970 for Philips' Evoluon in Eindhoven. It is a large electro-hydraulic structure whose form is based on that of a lobster's claw, with six hinged joints allowing for a great range of possible movements. When in motion, *The Senster's* behaviour is completely unexpected because it is so close to that of an animal that it is difficult to keep in mind the fact that one is in the presence of a machine. It is as if behaviour were more important than appearance in making us feel that something is alive.

The Senster reacts to its environment through two types of input: sound channels which pick up directional sounds, and a radar system which watches the movements of visitors walking around. The mechanics of *The Senster* – the actuators, pipelines, and wiring – are readily visible and form a part of its visual structure; a hydraulic system, which was chosen because it is quiet and facilitates fast and accurate movement, supplies the power for the independent movement of the joints. Each of the activating mechanisms forms a closed electro-hydraulic servo-system which responds to the analog signals from the control unit. A computer co-ordinates its activities, translates the input signals and instructions and modifies the behaviour of the sculpture according to past experience and current contingencies. An important part of the interface are the so-called 'predictors' which determine the accelerations and decelerations required for the most efficient movement of the claw.

The Senster elicits from people the kind of reactions that one might expect when someone is trying to communicate with another human being or an animal. It comes close to the sort of robot which we could imagine must have feelings because it behaves like creatures that have them. Ihnatowicz's work of the past four years at the Department of Mechanical Engineering of University College, London, has concentrated on designing an autonomous manipulative system (see chapter 'To work! To work!), but his next sculpture is likely to demonstrate even more accurately the pattern of behaviour which is animalistic rather than mechanical in character. It is possible to envisage a sculpture which will have not only needs but also desires and which might even initiate a dialogue with the viewer rather than just respond to something that is already in progress. Innovation in the field of robotics could well come from art as well as from industrial robotics because the goals of art are not clearly defined and most intangible problems could lend themselves to its ad hoc methods. Whereas industry may find solutions to numerous finite problems through the use of multipurpose robots, it will not deal with effects, illusions or emotive principles which belong to art. Art, which results in physical objects, is the only activity that represents the half-way house between the regimentation of technology and the pure fantasy of films and literature; and only in the name of art is a robot likely to made which is neither just a costume worn by an actor, nor an experimental artificial intelligence machine, nor one of the many identical working units in an unmanned factory.

Edward Ihnatowicz.
The Senster, 1970,
9 ft high with upward reach of 15 ft. The photograph was taken by the artist at the Department of Mechanical Engineering at University College where *The Senster* was put together before its departure for the Evoluon, in Eindhoven, Holland.