So why does the stigma of *G. gandavensis* initially accept pollen only from its own species or from related plants. and then ultimately only from its own species? Because the stigma has cell surface receptors that positively recognize only the correct pollen, the experiments of Knox and his colleagues show. When these receptors are blocked, fertilization by the appropriate pollen cannot take place. Like many animal cell membrane receptors, plant membrane receptors are glycoproteins.

On the basis of both their own results and those of some other botanists, they theorize how cell surface receptors on the stigma help it screen for the right pollen. A first set of receptors positively identifies proteins on pollen from the plant's own species or from a related species or genus. Once identified, the pollen then proceeds to the first stage of fertilization—hydration and pollen-tube growth. Pollen from unrelated species or genera would not be recognized and would not even start this first stage of fertilization. Then the pollen that has made it through the first screening process would encounter still another set of cell surface receptors. This time only pollen from the plant's identical species would be accepted, and only this pollen would then proceed with the second step of fertilization—penetrating the cuticle with its tube.

These experiments, the investigators conclude in the August PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, also "provide an insight into the biochemical mechanisms involved in the discrimination of self from not-self in plants . . ." In other words, plant recognition does not seem to be all that different from recognition among animals, where cell surface receptors on T and B cells of the immune system acknowledge proteins as "self" or "foreign." □

Leg 49 samples youngest sea crust

The Mid-Atlantic Ridge, a huge underwater mountain chain that ranks among the major topographical features on the planet earth, is the site of the birth and the continual rejuvenation of the Atlantic Ocean basin. In its latest voyage in the Deep Sea Drilling Project, the scientific vessel Glomar Challenger has drilled into the ridge and retrieved samples of ocean crust younger than any previously recovered in the project.

Scientists on Leg 49 of the project, completed Sept. 4, bored 10 holes along the ridge, where new crust is continually being formed, and at one site drilled into a crustal layer only about one million years old. This is less than one-third the age of any crust the project had previously sampled in its eight-year history. The Leg 49 drilling took place between Iceland and just south of the Azores where Project FAMOUS was conducted last year.

The task had its difficulties. "To drill it," note Leg 49 co-chief scientists Bruce Luyendyk of the University of California at Santa Barbara and J. R. Cann of the University of East Anglia in Norwich, England, "we had to look for a pocket of sediment only one-half mile across amid the craggy mountains of the ridge crest. It then took 11 tries before we found enough sediment to stabilize the drill bit so that actual drilling could begin, after which we were able to reach 40 meters into basement."

There is great interest in understanding the complex geological processes in the mid-ocean ridges, not only because of their scientific importance as the site of crustal formation but also because they are thought to be where many ore deposits are produced. Luyendyk and Cann say what they learned about boring into young sediments will be useful in gaining understanding of these processes in the future.

Iceland is of unique geophysical importance because it is one of the few pieces of the mid-ocean ridge that rises above sea level. The northernmost holes of Leg 49 provided an opportunity to study the history of Iceland. Three holes were drilled across the ridge south of the island. The youngest hole, into crust about 2.5 million years old, revealed lavas containing abundant gas bubbles, an indication of eruption of watery magma at shallow depths. The other two holes, into crust 20 million and 40 million years old, showed fewer gas bubbles. This could be an indication that Iceland did not exist during that period of time, say the project scientists. But much more analysis of recovered cores is needed to test this theory.

One perplexing discovery was that in two holes, only a mile apart, on opposite sides of a fracture zone, lavas of very different characters were found. This could be due to chance, or it could indicate profound effects of fracture zones on nearby lavas.

Better understanding of climate change during the ice ages may come out of Leg 49's North Atlantic cores. The sediment near Iceland appears to have a gap at the time the ice ages began 3 million years ago, but the cores farther south appear to contain a sedimentary record of the entire span.

The work of Leg 49 was cut short by Hurricane Emmy, which moved across the site where the Glomar Challenger was drilling. When the ship moved to an alternate location, the hurricane followed, to waters seldom struck by hurricanes.

Leg 49's achievement of drilling into the youngest ocean crust contrasts nicely with Leg 50's goal of drilling into the oldest ocean crust (SN: 9/4/76, p. 151). That work, northeast of the Canary Islands, is just now getting underway. □

'Science court' idea: Toward a test

With all the awkwardness one would expect of a colloquium between two groups so different in their training and daily practice, nationally prominent scientists and lawyers meeting this week to find a better way of resolving scientific disputes groped their way toward establishment of a science court. Though they could not even agree on the proper name for such a fundamentally new kind of institution, the participants generally expressed enthusiasm for trying it out.

The idea for the science court, in its present form, is the brainchild of Arthur Kantrowitz, chairman of Avco Everett Research Laboratory. Nearly 10 years ago he proposed an "institution for scientific inquiry" to isolate the scientific components of a controversial issue and subject them to the scrutiny of cross-examination. The principle would be to bring both sides of an issue together in face-to-face confrontation, where spurious claims could be challenged, gaps in knowledge delineated and decision-making speeded up.

As the present system of "expert" panels, public hearings, impact statements and ad hoc studies slowly bogged down in scholarly quibbling and legal red tape, other voices were added to Kantrowitz's, calling for some simpler, more direct procedure. Eventually, a Presidential task force was formed to study the question. Its interim report in SCIENCE (Aug. 20) set forth a tentative list of procedures and proposed a series of experimental trials to test the court concept.

At the heart of the proposal is a system by which opposing sides of some purely technical, but disputed issue would be presented by opposing "case managers." In a debate on nuclear power, for example, a spokesman for the Sierra Club might face one from the Atomic Industrial Forum. These adversaries would argue their respective cases before a panel of judges, selected for suitability to both sides, who would eventually issue an opinion. The judges would be scientists from fields related enough to give them insight, but who were not caught up in the present dispute. A separate referee—probably a scientist advised by a lawyer—would conduct the proceedings.

Ground rules for the proceedings would differ in several respects from those of a normal court. Evidence would be admitted or excluded according to the rules of science, which are designed to elicit facts, not those of law, which are designed to protect people. Value-laden opinions would neither be admitted nor produced, and the final judgment would be simply a statement of which scientific facts had been adequately supported. It would be left for other agencies to apply these facts to policy decisions.