as Dr. Benson believes is more likely, the Gulf is the first known example of a large section of earth's crust falling so far. "The bottom really dropped out," he says.

After such momentous findings only one percent of its way into its journey, the Challenger headed east of San Salvador in the Bahamas, where bottom samples delivered a mild blow to the increasingly popular theory of continental drift by sea floor spreading.

According to the theory, heat currents in earth's mantle force material up at the mid-oceanic ridges, from which it moves outward on either side. The oldest sediments thus would be those furthest from the ridges, since they would have had the most time to spread. By figuring backwards, scientists had come to the general conclusion that the spreading began between 100 million and 125 million years ago, before which the continents were joined together.

Sediments brought up by the Challenger, however, reveal that there has been deep ocean around the Bahamas for 150 million years or more. The liklihood is that the complicated estimation of the age of the continental split is inaccurate — "You hope you're within 100 percent on calculations like that," says one NSF scientist—but the ancient sediments could mean that the continental drift idea needs readjusting.

From San Salvador, the next stop was the Bermuda Rise, an area about 600 miles wide and 900 miles long on the route north to the Challenger's first landfall and resupply stop in Hoboken, N.J. The rise was the last major scientific drilling site in the first of the nine legs of the journey, and it was there that the researchers encountered an unsuspected problem that could plague them repeatedly during their 40,000-mile journey—and plague future seabottom drillers as well.

Turbidites, sediments deposited by turbidity currents, were previously thought to be relatively common on ocean floor rises but much less so in the deep ocean. To their surprise, the Challenger scientists found the turbidites to be almost equal in volume with the finer, ordinary sediments, and to include several layers of hardened chert (amorphous silica) and limestone which played havoc with their drill bits. One bit, which had successfully ground through several hundred feet of lava on land, was so badly mangled that it could not even be refitted with new diamond cutting points to salvage it. If the Challenger's indications hold true, such layers, impeding the way to deeper sediments, could be found almost anywhere in the oceans.

Last week the Challenger sailed for Dakar, Senegal, on the second leg of its journey.

SYPHILIS

Epidemic in rural Mississippi

Syphilis rates tend to be high in cities, and constant surveillance is needed to keep the disease under control. Rural epidemics are rare, so when the number of reported cases in a northwest Mississippi county rose from six in 1967 to more than 90 in the first nine months of this year, an alarm went out to the National Communicable Disease Center in Atlanta.

Both whites and Negroes are spreading the disease. One explanation, according to Dr. Durward L. Blakey of the state health department, is that though Coahoma County is largely agricultural, with more mechanization in farming, workers travel back and forth to Memphis and other cities for temporary jobs, thus spreading infection from urban pools.

Another reason for the increase is that more teenagers are becoming infected. The ages of contacts in Coahoma and adjoining counties range from 13 to 86, but 20 percent are teenagers. It is hard to deal with teenage contacts; educational programs in the schools are being set up in hope of preventing initial infections.

Coahoma County, Miss., does not have funds for a full-time health officer. Dr. Blakey of the state health department drives over from Jackson every two weeks to catch up on the accumulation of work referred to him as acting county health officer.

"The lack of funds for personnel is not confined to Mississippi," Dr. Blakey emphasizes. "It is nationwide. People are needed for interviewing suspects and giving blood tests after they are found. Only 35 percent of syphilis patients recognize the symptoms in the early stages. We have received help from NCDC for rounding up contacts and treating infected persons."

Nationwide, says Dr. William J. Brown, chief of the veneral disease branch of NCDC, teenagers and adults under 25 years account for 48 percent of syphilis cases. Those under 20 years of age make up 19 percent.

Despite the epidemic in Coahoma County, national figures show a decline in the past three years. In fiscal 1965 there were 23,250 cases reported; this year the total so far is 20,200.

Penicillin remains effective in the treatment of syphilis, although there is a growing resistance to the antibiotic by the gonorrhea organism. A vaccine for syphilis is being sought but, although the outlook is promising, it will be several years before it is ready for use.

One of the methods for uncovering more syphilis cases is called "cluster testing." A patient is interviewed to determine his sexual partners and then for persons among his acquaintances who he believes are having the same partners. In one instance, a cluster interview of 285 early infectious syphilis cases brought an additional 153 to treatment.

There is no doubt that veneral disease is seriously under-reported, and that most cases are reported and diagnosed late. Health departments are asking private physicians to report more of their cases. With only 20,200 syphilis cases reported this year, the true number is estimated at about 100,000. One of the problems in reporting is that of homosexuals who fear exposure. Between 12 and 15 percent of reported syphilis cases are among homosexuals.

Gonorrhea is still out of control nationally, with 400,000 cases reported last year, a rise of 25,000 cases over the previous year. Sixty percent of these are under 25 years old and 24 percent are under 20.

"The reason for the greater amount of gonorrhea," Dr. Brown says, "is that we do not have a good test as we do for syphilis. The CDC is at work on a blood test that researchers hope to perfect in the next year.

"Patients are not unwilling to come into a clinic or doctor's office for blood tests, but they will not volunteer for physical examinations, especially women."

PULSARS

Counting the subpulse

The puzzle of the pulsars—what sort of object can account for the extremely regular pulsed radio signals coming from 11 known locations in the sky—may now be even more puzzling. A very short period subpulsation has been discovered superimposed on the main pulsations of two of the objects. A resumption of the search for an optical counterpart is a likely result.

Dr. Frank D. Drake of the Arecibo Ionospheric Observatory of the Cornell-Sydney University Astronomy Center in Puerto Rico reported to a seminar last week at the National Radio Astronomy Observatory in Green Bank, W.Va., that he and Dr. Harold D. Craft Jr., have discovered pulsations of about 10 milliseconds duration superimposed on the one-second fluctuations of two pulsars—AP-2015+28 and CP-1919. (Letters in the designations refer to discovering observatories, A for Arecibo, C for Cambridge; the numbers refer to locations in the heavens.)

The 10-millisecond pulsation is in the range of period that would be expected