

Phillips heard about the first cases, and, as usual, the rumors about their severity were far worse than the facts. The men were delirious, rumor said. Phillips was glad he hadn't written his girl friend and guardian about his decision. And with each passing day, he was more assured he'd taken only distilled water in his arm.

After four weeks, he was positive enough to begin wry jokes about a subject he had been uncharacteristically serious about before. He kidded quietly about wanting to be a hero for his girl, being a benefactor of humanity, getting a red carpet before the parole board.

When he went to his job in the shoeshop one morning, he felt a sense of relief—and, he admits, a pang of conscience at being so happy that somebody else "had taken the real stuff."

Before the noon break, Phillips felt a sharp

About half those receiving the hepatitis virus were hospitalized, the others evidently having a natural immunity.

Sanders and Cotter were typical in that their worst illness lasted about three days. Both suffered prolonged vomiting spells that left them weak; their temperatures ranged between 100 and 102, and all appetite was lost.

The volunteers had been warned that there is no cure for hepatitis. For at least a week, they would be able to hold only citrus juices, vitamins, and aspirin. Afterward, they would spend three to four weeks in slow, uncomfortable recovery. Each volunteer, however, had undergone extensive physical examination to make sure he could withstand the attack on his liver cells.

Cotter, just coming out of the worst part of his illness, remembers looking around rather hazily

escape from boredom, the desire to help people "on the outside," or mostly a combination of all—and found themselves praying only that this was temporary, that they'd get their health back.

However, in all cases the experiment followed the expected pattern. These cases, and the ones before (a total of 40 illnesses in all experiments) positively identified two strains of virus and probably a third.

The two types of virus used on the volunteers seemed to have caused infectious hepatitis, the most prevalent type. It probably is spread by poor sanitation and hygiene. The third isolated virus may cause serum hepatitis, the most deadly type. It is usually transmitted through the blood—by transfusion, for example. Now, with the virus most closely identified, blood donors can be checked more accurately for traces of the virus.

### Phillips Loses 16 Pounds

"The more I got hungry, the less I got scared," says Will Phillips in telling about his recovery. But it was 10 days before he could finally keep a meal down. By that time he had lost 16 pounds, and it was almost two weeks before he could walk steadily. Like Sanders, Cotter, Yeagley, and other volunteers, Phillips required four to five weeks of hospitalization, despite the best possible medical care. "Even the boredom of a cell seemed better after that," one told a nurse.

When they were dismissed, each volunteer was assured his system had returned to normal.

The experiments proved that research had isolated the basic ingredients of a successful hepatitis vaccine. The next step for the Boggs team is to test the viruses further in order to determine the safest, most effective composition for a possible vaccine. They also must learn its long-range effects—whether, for example, a vaccinated person could infect an unvaccinated one. But the first step toward an antihepatitis vaccine is in the past.

As for the "human guinea pigs," another test came last July. The first of their number went before the parole board. In his file folder was the promised letter from Dr. Boggs. The 175 men who participated in the over-all experiment waited for word as if each was up for examination. When word came, it was disappointing. Parole denied.

The volunteer, interviewed shortly after, was bitter. "They promised us help, and they didn't come through," he said.

But a sampling of the others indicated a different feeling. "It's like when you're sick," said Phillips, explaining his covolunteer's anger. "You say things that aren't exactly so, and later you know it. Nobody I know says they have regrets. It probably did somebody some good."



PHOTOGRAPH BY ARTHUR SHAW

Convicts who voluntarily suffered hepatitis undergo postrecovery tests: some 175 took part in study.

shooting pain behind his forehead. He counted the days since his inoculation—29. The meal that noon was steamy and pungent, the kind he usually relished. But not today. Still, he thought, 29 days must be too long for hepatitis.

Typically, the symptoms disappeared that afternoon, and Phillips was convinced he'd just scared himself into feeling ill. But that night he broke into a sweat and felt nauseous.

Wednesday, fever and loss of appetite reappeared and then vanished. On Thursday, the onslaught came again and stayed. I've got it all right, Phillips told himself, but if it's this late it must be a weak case. He remembered that Doctor Boggs had said some volunteers who received the virus might build up protective antibodies in their blood, much as in the case of a smallpox vaccination. That was it—I've got one of those side reactions, Phillips decided.

His cell mate found him Friday morning, lying drenched in his bunk. "Get out of here, Willy," he said. "I don't want a stiff on my hands."

Phillips gave up the pretense and went on sick call. The nurse took his temperature. It was 104.8.

and seeing a form sprawled in the next bed. It was Phillips. As weak as he was, Cotter's interest rose. The jaundice symptoms were marked on Phillips. "You've turned yellow," Cotter said.

"I feel all green," Phillips replied. Attendants had affixed a glucose bottle to him for intravenous feeding the first day. He stared at the contraption and wondered if he should ask a nurse to write his girl. He would doze off for a while, but nausea would awaken him. The vomiting was violent and perspiration steady.

Doctor Boggs and an associate appeared at his side the next morning and ordered him off glucose. "It's just juices for a long time," he said. He examined Phillips' eyes and probed his right side. "You'll come out of it fine."

That seemed hardly possible to Phillips at the time. Whether their attacks were mild or severe, each of the volunteers recalled a common reaction: they could hear Doctor Boggs' initial words to them, warning of the possibility of danger in dealing with relative unknowns. They forgot their motives for volunteering—possible parole help, an

### The Doctor Views the Convict-Volunteer

*My use of prison volunteers to fight disease is not something new. In the past, numerous medical studies have been aided by these men—studies which have led to new knowledge of cancer, malaria, tuberculosis, and hepatitis. We of the medical profession are deeply indebted to these men for their help and trust. In the future, as in the past, their actions may contribute greatly to the welfare of all mankind.*

—Joseph D. Boggs, M. D.  
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