



are constituted alike, so that they see things alike.

It is distinctly possible that the canals *are not* long and approximately straight streaks, but simply a result of the running together of fine details which are beyond the powers of resolution of the instrument.

It is possible that *some* of them are actually long streak-like areas. For instance, a mountain chain eroded down until it presented rather low relief (lower than that of the present Appalachians) might appear to an observer 36,000,000 miles away as a long and roughly straight streak. Likewise, a broad river valley with its border of vegetation (The Mississippi or Amazon!!) might appear as a long and roughly straight streak. I do not wish to imply that there are either mountains or rivers on Mars, but I do wish to state emphatically that the idea of actual irrigation canals appears to me absurd. This is, of course, simply a personal opinion, and is not capable of proof at the present time, and perhaps the less said about it the better.

These drawings cannot compete with

observations made by Mars experts with larger instruments. I am not a Mars expert, but only a beginner so far as Mars is concerned, working with a 10-inch and a 12-inch refractor. The far southern position of the planet is an additional handicap, since it means that one must view it through a great thickness of the earth's atmosphere. So these observations are definitely in the amateur class. However, they are of interest as indicating what a non-expert with a telescope of only moderate size can see on Mars at this opposition.

One of the surprises in connection with these observations was the ease with which some of the most conspicuous canals can be seen. But possibly a larger instrument would resolve the fine detail and the appearance of linear streaks would then vanish. In fact, during occasional moments of very good seeing, I have suspected the beginning of such resolution,—there has been the fleeting impression that what I saw as a broad streak was actually a very intricate mass of detail just beyond the resolving power of the instrument.

*Science News Letter, August 5, 1939*

#### SEEN BY ASTRONOMER

*These drawings complete the series shown on the facing page. Left to right: July 7, 3:10 a. m.; July 2, 3:45 a. m.; June 26, 2:30 a. m.; June 25, 4:15 a. m. All times are Eastern Standard.*

the land on which they live is below sea level and is also in the river's way.

"There is little hope that the river can be returned to the bed from which it so recently fled," Mr. Hanwell declared. "On former occasions efforts to force the river back to its 'proper' bed were under way long before it was able to form a definite new channel of its own. In addition, those charged with the responsibility of controlling the rampant river had certain facilities at hand which are no longer available. Access to transportation facilities and materials necessary for curbing the river are now cut off by the war. The most serious breach remains, it is reported, in the 'no man's land' between the Japanese and Chinese 'lines'. So long as hostilities continue . . . it appears unlikely that effective countermeasures can or will be taken to avert an otherwise almost inevitable catastrophe."

Last year the Yellow River caused enormous destruction when it changed its course, usurped the beds of two other rivers and ended up by flowing through the Grand Canal into the Yangtze River. The Yangtze, itself in flood due to melting western China snows and dykes cut by fighting armies, backed up and overflowed Lake Poyang as a result.

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#### GEOGRAPHY

## Yellow River Flood Will Be More Damaging Than War

### Transportation and Other Facilities Necessary for Control Said To Be Cut Off by War; Millions Affected

**T**HE TREACHEROUS, silt-laden Yellow River, "China's Sorrow," will go on a flood rampage in a few weeks in the no man's land between contending Japanese armies and Chinese guerrillas which will exceed the war itself in destructiveness, Norman D. Hanwell of the American Council of the Institute of Pacific Relations, predicted.

The river's new course, which it carved out for itself last year in one of its periodic shifts, is too small to take care of the flow of water from summer rains, he said.

Twelve million people in the province of Kiangsu, in one corner of which Shanghai is located, will eventually be dispossessed and forced to move because

## ● RADIO

Dr. Henry B. Allen, director and secretary of historic Franklin Institute, will be the guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Monday, August 14, 5:45 EDST, 4:45 EST, 3:45 CST, 2:45 MST, 1:45 PST. Listen in on your local station. Listen in each Monday.