single 5. Since there are not three of a kind, there can not be formed a full-house. But how are we to be certain that we can not make five flushes and straights with these 25 cards? We can not examine the more than 5,194 billions of ways of arranging the 25 cards into five sets of five each, not distinguishing the order of the cards in a set or the order of the sets. We shall resort to the following conclusive analysis:

Since there are only three diamonds, no one of them occurs in a flush, and they are too far apart for two of them to occur in a straight. Hence 2d, 7d, Qd occur in three separate straights.

First, let both 3h and 4h occur in a straight with 2d, and hence with 5c, the only 5. Since there is no 5 left to go in a straight with 3c or with 2s, there is a flush of clubs and a flush of spades. These with the three straights mentioned must exhaust the 25 cards. But Qh is too far from 2d or 7d to be in a straight with one of them, nor can it be in a straight with another queen, Qd, nor in a flush of clubs or spades.

Second, let either 3h or 4h be not in a straight with 2d, and hence not in another straight (since a new 5 is lacking). Thus either 3h or 4h lies in a flush, containing all our five hearts. Since 2s can not occur in a straight (5 lacking), there is a flush of spades. Hence we have these two flushes and the three straights containing 2d, 7d, Qd. But 7c can not occur in one of these five poker hands.

This completes the proof that the above 25 cards can not be arranged in five complete poker hands.

L. E. DICKSON

SCIENCE IN FICTION

TO THE EDITOR OF SCIENCE: I am getting up a little catalog of fiction on scientific themes and should like the help of SCIENCE readers. Such books belong mostly to four classes:

(1) Fantastic and futuristic fiction, such as Jules Verne's "Twenty Thousand Leagues Under the Sea" (submarine) or "A Voyage to the Moon" (astronomy) and Wells's "The Food of the Gods" (hormones) or "The Story of Davidson's Eyes" (fourth dimension). This seems to be the largest and most popular group.

(2) Novels based upon some scientific discovery or showing the influence of applied science upon society, such as Hergesheimer's "Three Black Pennys" (development of the iron industry).

(3) Stories in which some scientific fact or theory forms the theme, such as Arthur Reeve's detective stories and Rebecca West's "The Return of the Soldier" (Freudianism).

(4) Historical fiction where a distinguished man of science plays an important part, such as Merejkowski's "Romance of Leonardo da Vinci" and Guitry's play of Pasteur. This which would seem to be a fertile field for fiction has apparently been rather neglected.

I should be very much obliged if those who happen to know of good novels or worth while short stories of this sort would give me the titles and authors' names, also if convenient the publisher and the scientific motif.

EDWIN E. SLOSSON

SCIENCE SERVICE,
WASHINGTON

QUOTATIONS

THE WORK OF GENERAL GORGAS

ONE of the last acts of Congress before adjournment was to send to the President a bill to pay a monthly pension of $150 to the widow of General William C. Gorgas, who died in London on July 4, 1920. In 1918 General Gorgas was placed on the retired list, having reached the age of 64. In the two years of life remaining to him his services were in great demand as an expert in sanitation. The Rockefeller Foundation made him director of the yellow fever work of its International Health Board. He visited Guayaquil to see what could be done to clean up that pest-hole. The government of Peru engaged him to carry out a sanitary program in that country. General Gorgas did not live long enough to earn the reward to which he was entitled as a renowned specialist in sanitation. His army pay had increased slowly as he rose from grade to grade. It was not until 1916, two years before he left