

PHYSIOLOGY

New Blood Test May Decide Doubtful Parentage Cases

Reactions of Blood to Foreign Bodies Is Basis of Test Which Scientists Have Applied to Tracing of Kinship

CASES of doubtful parentage of children, such as agitate the courts from time to time, may possibly be decided with more certainty in the future, if a new blood test originated by two British scientists is developed to a point that now appears possible. The first experiments leading to the new technique were performed on cattle in Egypt by Dr. C. Todd and Dr. R. G. White, and further researches were conducted on fowls in England, by Dr. Todd working alone.

The test depends on the reactions of blood to foreign bodies that get into it. Blood invaded by germs, blood corpuscles of another animal, or anything else that does not belong there, generates substances to fight against the invaders. These substances are known to scientists by the general name of "antibodies." The familiar antitoxins used against various diseases belong to the antibody classification.

Attacked by Antibodies

Foreign corpuscles that find their way into the blood stream are attacked by two different types of antibody. One of them tends to dissolve the outsiders, and is called a "hemolysin," or simply "lysin." The other makes them stick together in clumps, and is called an "agglutinin." Both lysin and agglutinin reactions were used by the two British scientists in their researches, the former in the cattle work, the latter in the work on fowls.

Following hints contained in earlier researches, Dr. Todd and Dr. White first found that antibody reactions are not the same if corpuscles from different animals are used with the same blood sample, and that conversely blood corpuscles from the same lot will dissolve less readily in one individual's blood serum than they do in another's.

The key to their discovery came when they found it was possible to "exhaust" the antibody in a given preparation of sensitized serum. By adding considerable quantities of corpuscles from one individual to such a serum sample, a point is finally reached where that serum will no longer have any effect on cor-

puscles from that particular source; though it will continue to destroy any other corpuscles that are added to it.

To do away with the large individual differences in reactions of separate lots of serum, Dr. Todd and Dr. White prepared what they called "polyvalent" sera, by mixing together sensitized sera from a large number of different animals. This ironed out the individual variations, and made the mixture about equally effective against all corpuscles of the species used in its production.

When now such a polyvalent serum was "exhausted" with corpuscles from a single individual, it became highly selective, sparing those corpuscles only and destroying all others, except that in some instances it was not so destructive to blood corpuscles from animals nearly related to the test specimen.

The possibility of testing blood relationship was thought of by Dr. Todd when he was working on his fowls in England. He bred three different families of chickens, and tested blood ob-

tained from the chicks against the corpuscles of their parents. In all cases but one, there was a strong "family reaction," the blood corpuscles of both parent fowls combined reacting toward the chick serum as the chick's own corpuscles would. Taken separately, either paternal or maternal corpuscles might fail to react; though where one failed the other always reacted. Thus a negative test would not necessarily indicate that parenthood could be denied, but a positive test would definitely mean that the individual so reacting, and none other, could be the parent.

So sure was Dr. Todd of the validity of his test that in the one case that failed, he tried the "errant" chick's blood against the parental corpuscles in his two other fowl families. It fitted one of these, and he concluded that there had been a mistake in marking the eggs before hatching.

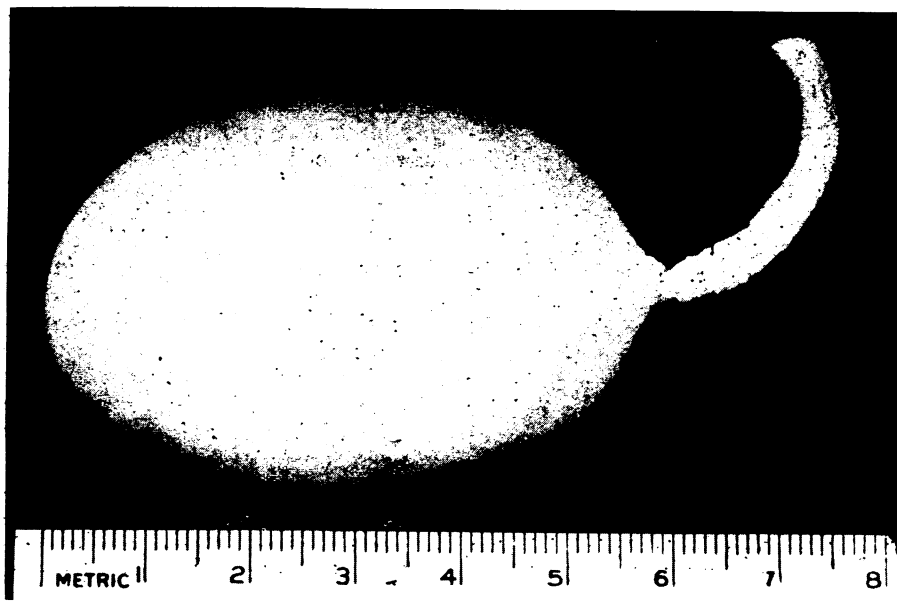
Science News Letter, August 15, 1931

BIOLOGY

Hen's Egg Grows Handle More Than Inch Long

A HEN'S EGG with a peculiar handle-like appendage is California's latest scientific curiosity. It was studied by Prof. Bruce M. Harrison, biologist at the University of Southern California.

Extending like a tail from the large end of the egg, which was otherwise normal in size and shape, the appendage measured nearly an inch and a half



EASY TO PICK UP

Or so one would suppose if he came across an ordinary egg with a neat handle attached. This strange appendage occurred on an egg from a chicken ranch of San Gabriel, California. It is covered with shell and definite enough. But the mystery still remains as to who the mother is.