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W. F. HANDSCHIN, VICE-DIRECTOR

URBANA, ILLINOIS

THE RAG-DOLL TESTER FOR CORN

BY W. L. BURLISON AND GEORGE H. DUNGAN



THE RAG DOLL ROLLED AND READY FOR SOAKING

TO CLUB MEMBERS IN ALL PROJECTS

Many of you, perhaps, have read the story of the Leak in the Dike, and how Peter, the lad in far away Holland, saved his country by putting his arm into a little hole in a dike and stopping the leak. The dike in Holland is, as you know, all that stands between that country and destruction. If the dike should give way, the ocean would sweep in and death and devastation would follow.

Our own country, the United States, at the present time stands in much the same position as does Holland. Instead of a threatening ocean of water, we are menaced by a sea of German autocracy. Did you ever think what would be the result if it should engulf us? Do you know that it would sweep away the things that are nearest and dearest to the hearts of every American boy and girl?

Like Holland, we are protected by mighty dikes—our army and our navy. But the mightiest dike of them all is Food. During the past year you have done your bit in producing Food. It may not seem to you that you have done very much, but every ounce of food produced in garden, field, or feed yard has helped to build the dike. Now a leak has been discovered. Will you, like Peter, help to stop it?

Our corn crop, the pride of Illinois, is threatened unless good seed can be obtained. It can be obtained only by picking over and testing ear by ear the corn which has been gathered. Every untested ear that is planted is a leak in the dike, and every club member who tests an ear of corn, whether he plants it or whether someone else plants it, is stopping a leak in the dike.

This little circular will tell you how to go about this. It is placed in your hands with the hope that whatever your club interest may be, wherever you may live, whether in the city or in the open country, you may see this opportunity for patriotic service.

Uncle Sam has done a great deal for club boys and girls. Here is a chance to do something for him. Take this up in your club meetings, and talk with your club leader. See if there is not some way of cooperating with the farmers in your neighborhood in this work. Then when this great conflict is over, other boys and girls may read your story as you have read Peter's.

JAMES H. GREENE
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THE RAG-DOLL TESTER FOR CORN

BY W. L. BURLISON, ASSOCIATE PROFESSOR OF CROP PRODUCTION, AND
GEORGE H. DUNGAN, ASSISTANT IN CROP PRODUCTION

The seed-corn situation was never so serious in Illinois as it is the present season of 1918. Corn was injured last fall in practically every section of the state by very early frost, and for this reason very little mature seed was selected from the field. Reports on the germination tests this year are very discouraging. The vitality of corn probably has never been so unsatisfactory.

It will be necessary to make germination tests of every ear which is to be planted this spring. There are several methods of doing this, but the simplest and least expensive one is by means of the rag-doll tester. This plan is suggested for boys' and girls' clubs for the following reasons:

1. It will, if properly handled, give a reliable index of the vitality of seed corn.
2. It is cheap and easily made.
3. It is simple in operation, and takes no more time than other more expensive testers.
4. As a rule, there is little difficulty experienced with molds which develop in certain other testers.
5. It is easily disinfected.
6. Counting the grains is less difficult, because the entire kernel with its roots can be observed.
7. The rag-doll tester is small, and "dolls" can be stored away in a limited space.

Making the Tester.—Cut common muslin into strips 5 to 7 feet long and 10 inches wide. Hem the edge in order to prevent raveling. Then leaving at each end an unmarked area 8 to 10 inches deep, divide the strip of cloth down the center with a heavy line which cannot be easily erased and which will not blur upon wetting. Mark this area off into rectangles 3 inches wide and 5 inches long by crossing the center line perpendicularly with lines 3 inches apart. Make a mark on the back of the doll in the upper left-hand corner to indicate the top after it is rolled up. The tester is now ready for filling (see Fig. 1).

Arranging the Ears.—Place the ears in a convenient location where they will not be disturbed. The ears should be numbered to correspond to the squares in the tester. These may be placed in

NOTE.—The rag-doll tester was first used and described by the Iowa Agricultural Experiment Station.

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40

FIG. 1.—A RAG DOLL READY TO BE USED

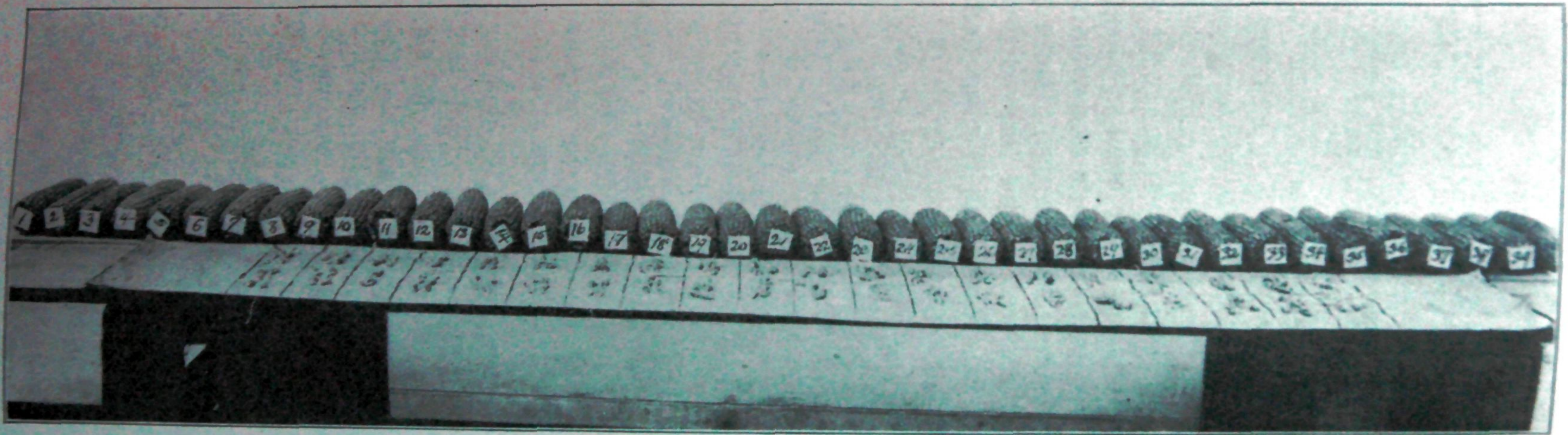


FIG. 2.—A RAG-DOLL TESTER UNROLLED, SHOWING THE RESULT OF A SEVEN-DAY GERMINATION TEST. THE EARS ARE NUMBERED TO CORRESPOND WITH THE NUMBERS OF THE DIVISIONS ON THE TESTER

consecutive order on a table, but numbering them is better (see Fig. 2).

Preparing the "Doll" for the Test.—First dip the cloth in water, then wring it gently, and spread it on a table of convenient height for comfortable work. The cloth when slightly moist will be more easily handled, and the grains will not slip about on the tester before it is rolled up.

Removing and Placing the Kernels.—Six kernels from each ear should be used in each division of this tester. The grains should be placed germ-side up, and all the tips should point in the same direction in order to make possible the rapid reading of results at the end of the test (see Fig. 3). Remove one grain about two inches

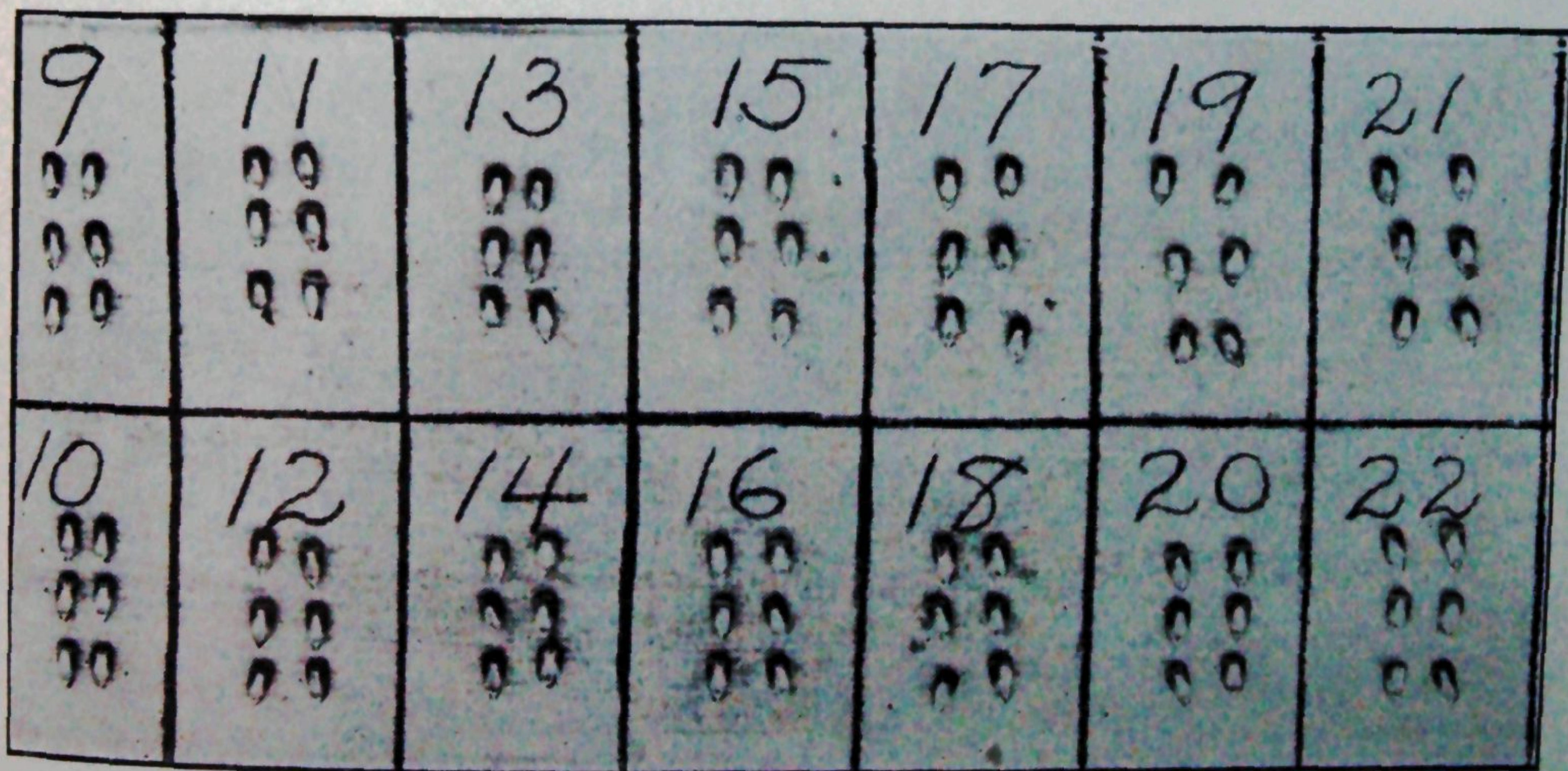
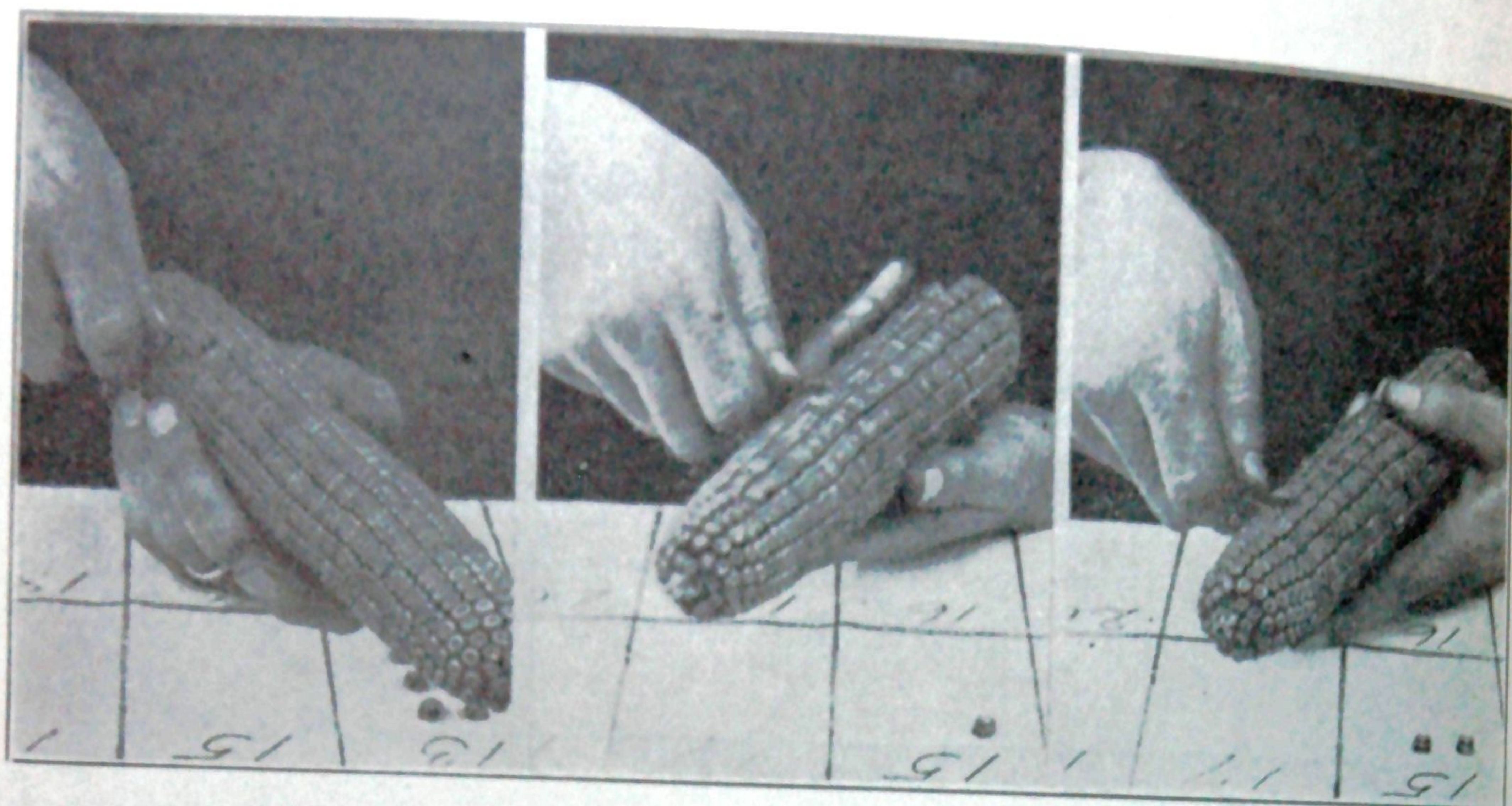


FIG. 3.—PLACING THE KERNELS WITH GERM-SIDE UP AND TIPS POINTING IN ONE DIRECTION FACILITATES READING THE TEST

from the butt. Turn the ear one-fourth around and remove a kernel from the middle of the ear. Turn the ear again one-fourth around in the same direction as before and remove a grain two inches from the tip. Holding the ear in the same position, remove a kernel about two inches from the butt. Turn the ear and repeat the above operation, taking a kernel from the middle and one two inches from the tip.

Thus, when the ear has been turned around once, six kernels will have been removed: two from the butt, two from the middle, and two from the tip; and each of the two grains from the butt, from the middle, and from the tip will have come from opposite sides of the ear (see Fig. 4).

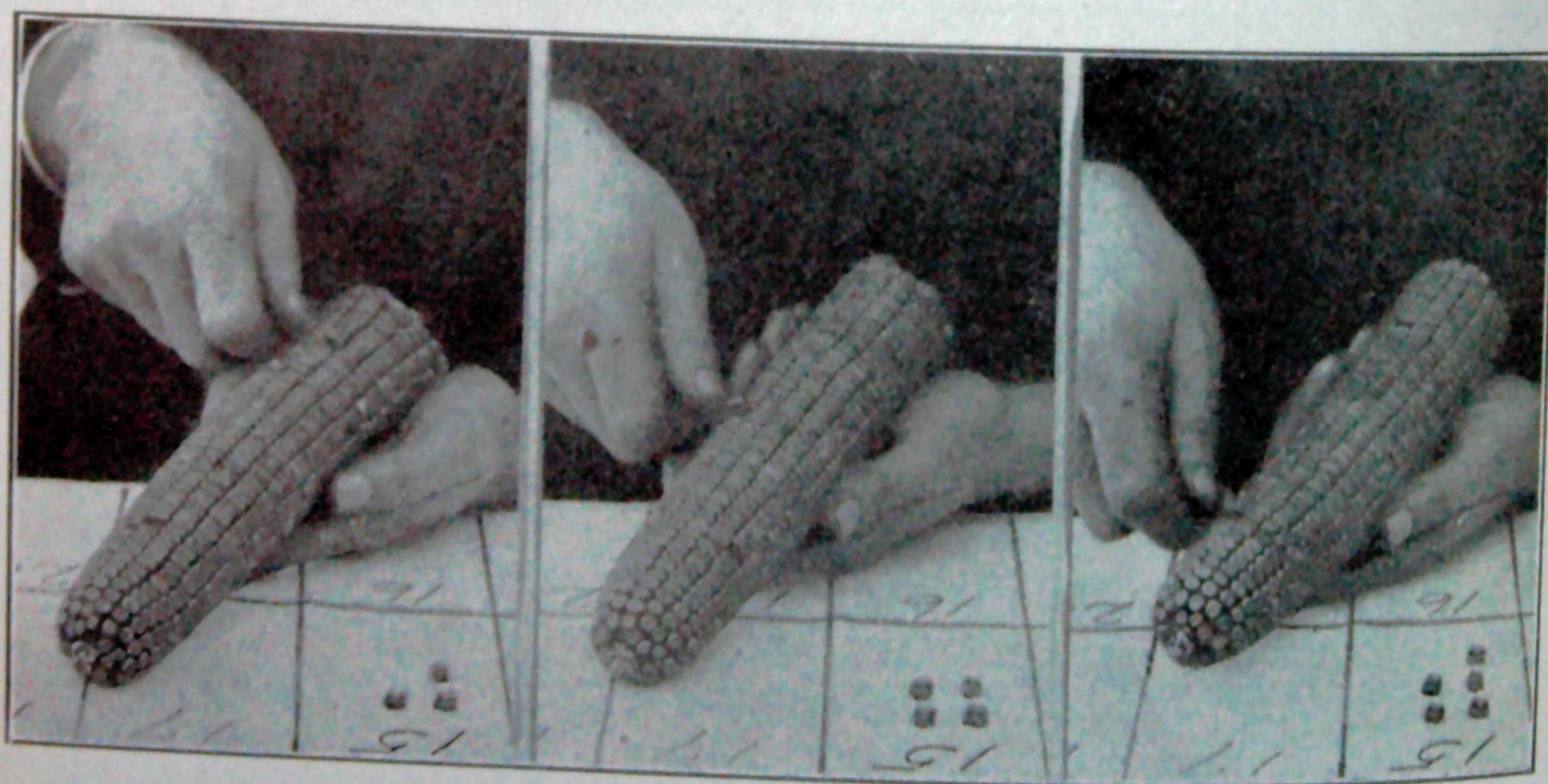


1

2

3

- 1—Remove one grain about 2 inches from the butt
 2—Turn ear $\frac{1}{4}$ around and take kernel from middle of ear
 3—Turn again $\frac{1}{4}$ around in same direction; take grain 2 inches from tip



4

5

6

- 4—Holding ear in same position, remove kernel 2 inches from butt
 5—Again turn the ear and remove kernel from middle of ear
 6—Make one more quarter-turn and take kernel 2 inches from tip

FIG. 4.—REMOVING THE KERNELS FOR TESTING

Rolling the "Doll" and Germinating the Corn.—Beginning at the end having the highest numbers, roll the cloth, with the grains, firmly but not tightly around a stick or a small piece of wire screening bent in the form of a cylinder for a core (Fig. 5). Place around each end, and the center if desired, a string or a rubber band (see front cover). Place the roll in a bucket of water with a temperature of about 80°F., and let it remain for ten or fifteen hours. At the end of this period, pour off the water and store the tester top side up in a warm room. A box, a bucket, or a moist sack may

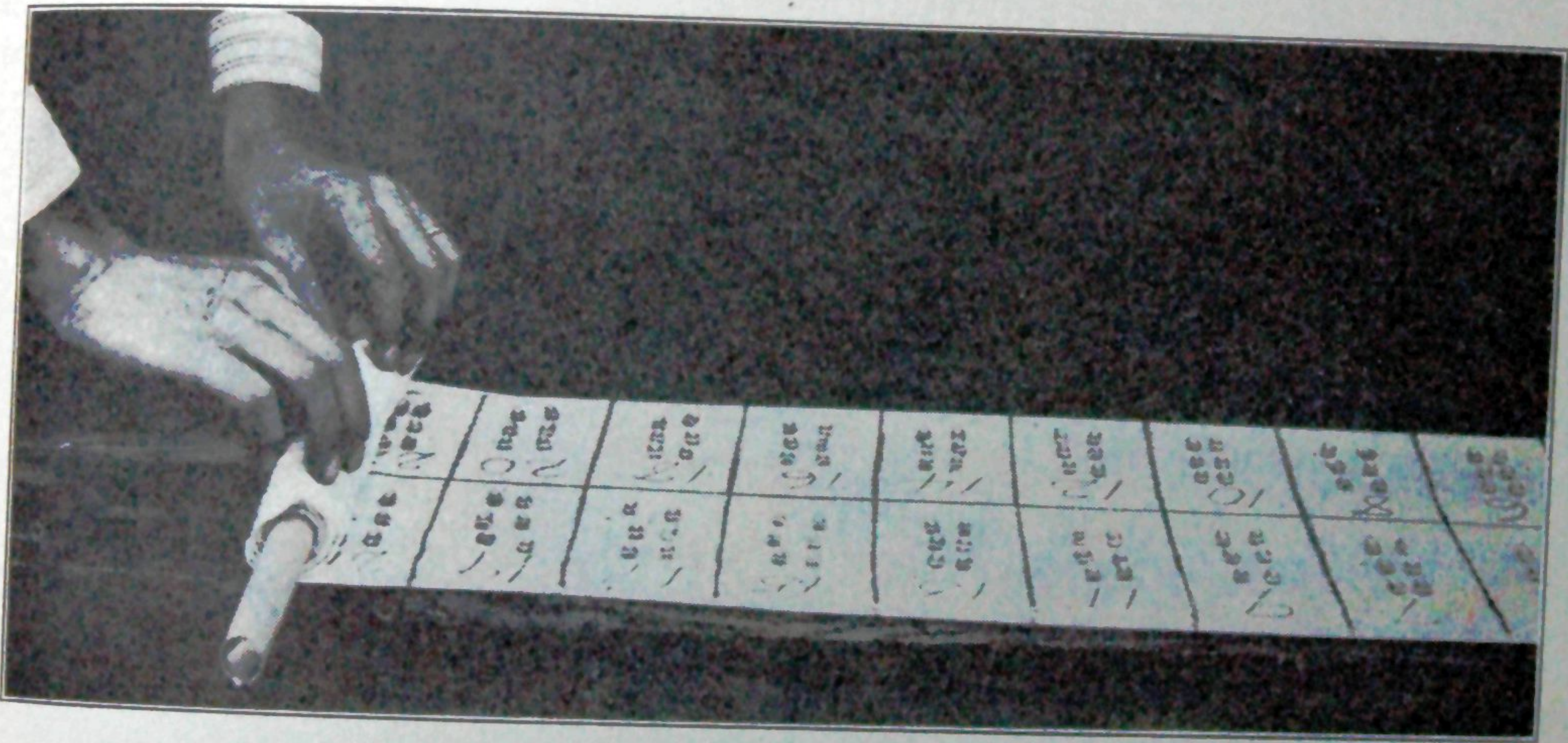


FIG. 5.—THE TESTER SHOULD BE ROLLED FIRMLY BUT NOT TIGHTLY AROUND A STICK OR SMALL CARDBOARD MAILING TUBE AS A CORE

be placed over the roll so that it will not dry out, but some allowance should be made for ventilation. A number of "dolls" may be used at the same time, making it possible to test a large quantity of corn quickly. About two yards of 36-inch muslin is required for each $1\frac{1}{4}$ bushels of corn tested.

At the end of five to eight days the count may be made and the germination test recorded.

NOTE.—For fuller information concerning Corn Club work, the reader is referred to Extension Circular 7 of the Illinois College of Agriculture. If information concerning the organization and direction of boys' and girls' clubs is desired, it will be found in Extension Circular 5 of the Illinois College of Agriculture. Personal help thru correspondence, conferences, or meetings may be secured thru the State Leader in Junior Extension, College of Agriculture, Urbana, Illinois.

Observing Results and Discarding Ears.—Untie the strings, or slip off the rubber bands, and unroll the doll carefully so that no kernels are displaced. Note the germination of the kernels in each rectangle and count those good that show strong, vigorous roots and shoots from all six kernels (see Fig. 6C). Ears with one or two kernels producing weak roots and shoots should be discarded or laid out and retested (see Fig. 6B). If the same results are obtained in the second test, the ear should be discarded. All ears in the test that show more than two kernels with weak roots and shoots should be thrown out at once (see Fig. 6A). If only one kernel of



FIG. 6.—GERMINATION TESTS

the six from any one of the ears fails to grow and the others are good, the ear should be retested; but if no better results are obtained in the second test, the ear should be thrown into the feed crib. All ears with more than one dead kernel among the six kernels in the test should be thrown out, immediately.

Treatment of a Used Doll before Putting in Other Tests.—Often molds develop during the germination of the corn, and a tester used over and over again will become badly infected with a fungous growth. To prevent this trouble it is advisable, before putting in a new test, to sterilize each "doll" by immersing it for a few minutes in boiling water. By following this practice, the tester may be used again and again and continue to give as good results as a new one.