Diploid, tetraploid and hexaploid forms all show a regular pairing of chromosomes at diakinesis and abnormalities were very rare in any of the reduction phases.

PENTAPLOID HYBRID

Vaccinium corymbosum × *V. virgatum* (Katharine × Rabbiteye).

The reduction stages were studied in several F_1 plants of the foregoing interspecific hybrid. Each showed abnormalities such as are usually met with in hybrids whose parents had different chromosome numbers. Occasionally all chromosomes were paired, giving bivalent chromosomes at diakinesis. A regular mother-cell is pictured in Fig. 1D, in which there are 30 chromosomes. More frequently the mother-cells are found to be much vacuolated and the reduction phases irregular, giving as a result polycary, polyspory and very little normal-appearing pollen.

A. E. LONGLEY

U. S. DEPARTMENT OF AGRICULTURE

THE STRETCHING OF COPPER WIRE

THE following suggestive experiment has been in use in the Physical Laboratory of Queen's University at Kingston, Ont., for some years. As it is thought to embody some novel features it is offered to those who may be interested in it.

A light copper wire is *stretched* horizontally on an ordinary laboratory stand, as shown in Fig. 1. The depression of its mid-point for various loads is observed through a reading microscope. Stress and strain are expressed in terms of the dimensions of the wire, the load and the depression of the mid-point, and, from the plot of one against the other, values are found for Young's modulus, for the stress or strain at the elastic limit, for the yield point and for the stress and the strain *initially* in the wire.

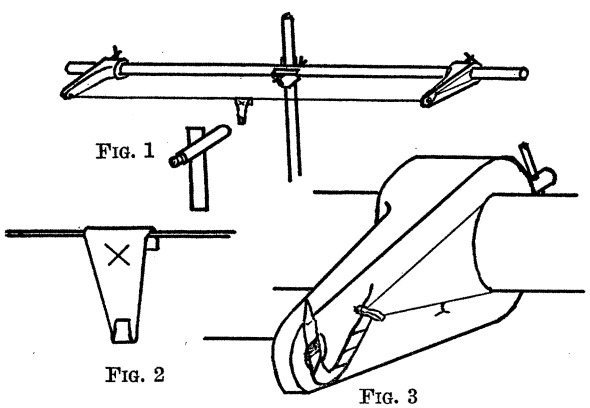

FIG. 1

FIG. 2

FIG. 3

The details are as follows: The most satisfactory grip for the wire ends so far found is made by winding them *tightly* around bent wire nails (See Fig. 3), the wire then passing through the *upper part* of a hole in the bracket arm. A subsidiary wire from the nail head around the horizontal arm holds the nail in place until the wire is stretched by the separation and clamping of the brackets. On the middle of the wire is placed a light hook with a fiducial mark (Fig. 2). The level of the center of this cross is read on

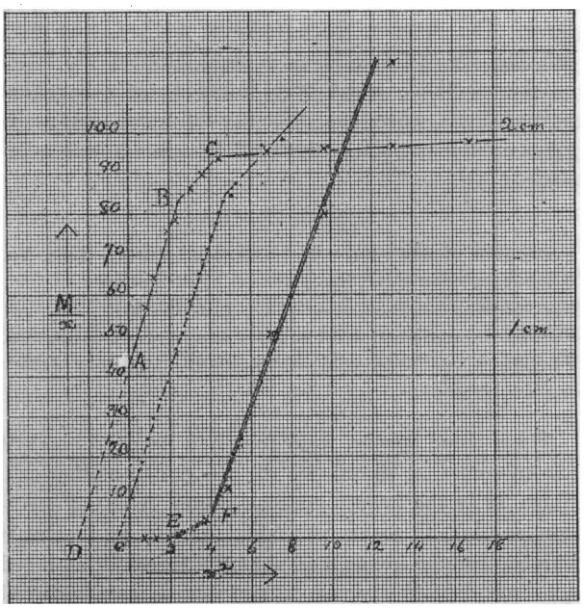

FIG. 4

the microscope scale before any load is applied, after the application of each load and after the load has been removed.

For example: Wire from a spool labelled "Bright H. C. Copper Wire No. 26"

Length of wire = l = 91.9 cm. (nail to nail)

Radius of wire = r = 0.023 cm.

Load M	Level of fiducial mark		Depression	
	Under load	Load removed	Under load	Load removed
gm–wt.	cm.	cm.	cm.	cm.
0.0	.....	9.140	.....	.....
50.6	8.250	9.140	0.890	0.000
70.6	8.040	9.140	1.100	0.000
100.6	7.740	9.135	1.400	0.005
120.6	7.600	9.115	1.540	0.025
150.6	7.390	9.095	1.750	0.045
170.6	7.240	9.050	1.900	0.090
	etc.	etc.	etc.	etc.

Using the simplest of vector diagrams and noting that the angles are small we find that the stress in the wire is given by

$$\frac{M}{x}\left(\frac{gl}{4\pi r^2}\right)$$

independently of the initial stress, and that the strain is given by

$$x^2\left(\frac{4}{1^2}\right)+S$$

where S is the strain produced in the wire by the initial stretching and π is the depression.

Platting $\frac{M}{x}$ against x^2 we get the graph shown in Fig. 4 where the crosses show the values for the table quoted above and the dots show a similar set obtained from another piece of the same wire *but under a much smaller initial strain.*

It will be noted that the slope of the line *A B* multiplied by the ratio of the constants $\left(\frac{g\,l}{4\pi r^2}\right)$ and $\left(\frac{4}{1^2}\right)$ gives Young's modulus for the copper used. *B* is the elastic limit and *C* the "yield point." The variation of the level of the fiducial mark from its original position for each of these points is shown by the double line on the plot (scale to the right hand of plot). It will be observed that the break at *E* corresponds with the elastic limit at *B,* and that *F* (where the large yield occurs) corresponds with *C* on the line of stress and strain.

And finally, if one extends the line *B A* back to cut the axes, $O\,A\times\left(\frac{g\,l}{4\pi r^2}\right)$ gives the initial stress in the wire and $O\,D\times\left(\frac{4}{1^2}\right)$ gives the initial strain.

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THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE REGULAR FALL MEETING OF THE EXECUTIVE COMMITTEE

THE regular fall meeting of the executive committee of the American Association was held at the Urbana-Lincoln Hotel, in Urbana, Illinois, on Monday, October 17, 1927. Three sessions were held, each of about two hours, beginning at 10:00, 3:00 and 8:00 o'clock, and the members who were present dined together at 6:15 at the same hotel. The following members were present: Cattell, Fairchild, Livingston, W. A. Noyes and Ward. The following items of business were transacted, with the approval of those present and with the subsequent approval of Dr. Humphreys, who added his vote to the five votes of those who were present at the sessions. Each item of business consequently has the approval of a majority of the committee and becomes a legal action of the association. The members of the committee who were unable to be present at this meeting are Humphreys, Kellogg, Moulton, A. A. Noyes, Pupin and Wilson. The official minutes of the meeting have now been approved by means of a mail vote.

1. The permanent secretary reported that the minutes of the last preceding meeting had been approved by mail.

2. The permanent secretary read a communication from the treasurer (dated May 12, 1927), calling attention to the will of the late Benjamin Pickman Mann, of Washington, D. C., by which the American Association is to receive the balance of a trust established by the will, after certain provisions have been cared for.

3. The permanent secretary's annual financial report for 1926–27, of September 30, 1927, was accepted and referred to the council.

4. The permanent secretary's proposed budget for the fiscal year 1927–28 was unanimously approved. This is based on prospective receipts (entrance fees of new members and annual dues) of $70,000, of which $43,000 is to be expended for journal subscriptions for members (SCIENCE or *The Scientific Monthly*).

5. The permanent secretary's annual report on membership for the fiscal year 1926–27 was accepted. On September 30 the total number of members in good standing was 13,930, representing an increase of 537 since the preceding annual report. The total enrolment (including, besides members in good standing, those whose names were retained on the roll although in arrears for one or for two years) was 14,862, representing an increase, since last year's report, of 496, or 3.4 per cent. New members and reinstatements amounted to 1,327 for the fiscal year just closed. The total loss in enrolment amounted to 831, including 178 deaths, 281 resignations and 372 names dropped October 1, 1926, at the close of two years of arrears. On October 1, 1927, 412 names were dropped from the roll on account of two years of arrearage. The permanent secretary added that 450 new members had been enrolled since September 30, 1927. (This number has now increased, November 14, 1927, to 1,114 and the total enrolment is now 15,572.)

6. The permanent secretary reported that $1,310.00 had been received as contributions from members to the Agassiz Bust Fund (see SCIENCE for December 10, 1926) and that that amount had been paid over to the Hall of Fame, New York University. The expenses of the committee on the Agassiz Bust Fund were $362.33, met from the current funds of the permanent secretary's office and not charged against the fund. This report was approved and the permanent secretary was asked to make arrangements, if possible,