The animals were distributed to the various supplements as evenly as possible in respect to age, weight and litter mates.

The gains in hemoglobin during the experimental period in response to the various food supplements are shown in Table 1. As is evident from the figures for the standard deviation of the mean (S. D.), small differences may not be considered significant for these values. The hemoglobin of the animals receiving the test foods and of those receiving completely available iron, in the form of ferric chloride, rose to approximately the same levels. It appears, therefore, that the iron in the dried foods tested, namely, blackeyed peas, green and yellow split peas, navy beans, pinto beans and butter beans, is completely available to the nutritionally anemic rat for the regeneration of hemoglobin.

TABLE 1

THE REGENERATION OF HEMOGLOBIN IN ANEMIC RATS RECEIVING EITHER FERRIC CHLORIDE OR FOOD SUPPLEMENTS CONTAINING 0.2 MG OF IRON PER DAY DURING AN EXPERIMENTAL PERIOD OF 6 WEEKS

Supplement	Number of rats	Gain in hemoglobin	± S. D.*
		gm/100 cc	
$FeCl_3$	25	9.3	0.26
Blackeyed peas	8	8.9	0.33
Navy beans	8	8.8	0.46
Pinto beans	9	8.9	0.42
Butter beans	9	9.3	0.31
Green split peas	7	10.1	0.54
Yellow split peas	6	10.3	0.20

* Standard deviation of the mean.

LEAH ASCHAM
MARY SPEIRS
DOROTHY MADDOX

GEORGIA EXPERIMENT STATION,
EXPERIMENT, GA.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

CULTURE TECHNIC FOR QUANTITATIVE GROWTH STUDIES WITH MYXOPHYCEAE

THE procedure whereby aliquots are taken for cell counts from liquid or other large volume culture media is inaccurate because of unequal distribution. And the hanging-drop method of slide culture is difficult to manage for long periods when frequent changes of solution must be had. Therefore when studies of cell increase in number are to be made of small organisms somewhat larger than bacteria, other methods must be devised. Two such methods are here reported.

Chroococcus was grown in tiny paraffin boxes fixed to glass slides. The boxes were made from the sprocket holes of 16 mm uncoated movie film kindly donated by the Eastman Kodak Company of Rochester, New York. Short strips of the film were washed overnight in distilled water, dried, roughened by fine sandpaper and coated with hard (62°) paraffin. Pieces containing a single rectangular hole were affixed to cover-slips by warming. Into the little receptacle so produced the blue-green algae cells were transferred by micropipette from a Bristol solution culture. Accurate counts were made of the cells so introduced at the beginning and after any desired period up to 72 hours. Evaporation was controlled by keeping the preparation in large petri dishes containing wet filter paper and by adding distilled water when necessary.

The second method was found useful for microorganisms which have a gelatinous sheath, such as Anabaena and diatoms. Thoroughly clean cover-slips were broken into tiny pieces, washed and placed in small petri dishes in such manner that each little piece of glass remained free from the others. The preparation was sterilized while wet so that the glass fragments became attached and but one surface was available for algae growth. Over this preparation was then poured about 10 cc of a Bristol solution culture of the organism and the whole was allowed to stand for from 24 to 48 hours. By that time algae were attached and growing on the fragments. Single pieces were then transferred to hollow ground culture slides, one to each, and the number of cells counted. Anabaena was kept healthy and increasing in cell number under such conditions for as long as 120 hours with many changes of solution, while the accompanying growth was quantitatively determinable at will.

Although most of the blue-green algae grow nicely on agar and such colonies serve adequately as stock material, it is next to impossible to obtain a quantitative sample therefrom. Consequently, the procedure of first transferring from agar to Bristol solution was adopted. Cell increase in this medium takes place readily, and clumps can be so broken by mild shaking that samples for quantitative study can be obtained as described above.

LEE WALP

THE LANKENAU HOSPITAL RESEARCH INSTITUTE AND MARIETTA COLLEGE

AN INEXPENSIVE SMALL AIR COMPRESSOR

HOAGLAND[1] and others have stressed the desirability of adequate aeration of solutions if reliable experimental data are to be obtained from plants grown in culture solutions. Those working in greenhouses far removed from a source of compressed air are forced to choose between several rather unsatisfactory procedures. Small rotary pumps may not give sufficient pressure to assure air for all cultures. Conventional

[1] D. R. Hoagland, *Bot. Rev.*, 3: 307–334, 1937.