

bergs which survive the journey of possibly two and probably three years. Therefore, if one may presume that the number of bergs completing this journey is related to the number beginning it, any unusual number of bergs calved from their parent glaciers in 1922 and 1938 would be reflected by unusual berg counts south of 48° in 1924 or 1925 and 1940 or 1941 respectively. The berg counts for these years were:

Year	Berg Count	Year	Berg Count
1924 .....	11	1940 .....	2
1925 .....	109	1941 .....	2

There are, however, many variable factors combining to produce the more than 90 percent mortality which the bergs suffer during their two- or three- year journey from Greenland to the Grand Banks and these factors have yet to be evaluated quantitatively. Fluctuations in these factors may or may not leave valid the presumption that a large number of bergs calved in any one year will be reflected as a large berg count south of the 48th parallel two or three years later. If it is valid and if the author proposes to gauge the size of the crop of northern bergs produced in 1949 by the number which appear in the Grand Banks region, the success or failure of the prediction made will not be known until 1951 or 1952; but if the author means that an outbreak of ice was due in the Grand Banks region in 1949, then the prediction has already failed, since only 47 bergs are estimated to have crossed the 48th parallel in 1949.

FLOYD M. SOULE

*International Ice Patrol*

*U. S. Coast Guard, Woods Hole, Massachusetts*

## Reaction Time of the Common Housefly (*Musca domestica*)

During the course of unrelated ballistic experimentation, the opportunity presented itself to observe the reaction time and rate of wing stroke of the common housefly by means of high speed cinematography. The fly was walking near the edge of a flexibly supported plate of bullet-resistant material approximately 6 in. square. A bullet fired at the center of the plate approximately 3 in. from the fly caused the flexibly supported plate to be jerked away from the fly's feet with great rapidity, leaving the fly suspended in the air.

Analysis of the high speed motion picture record (about 2,400 frames per sec) revealed that the fly remained suspended in the air for a short time. It was then caught in what appeared to be a downdraft and commenced to fall, without showing any sign of wing activity. It had fallen perhaps  $\frac{1}{2}$  in. before it began to beat its wings. This occurred 21 msec after its support had been jerked away. About 1 msec before the first wing motion, it appeared to extend its rear legs to the utmost, as though attempting to spring from the non-existent support. Although camera focus was not good enough to reveal fine detail, the fly appeared to execute this motion three times at intervals of slightly more than 1 msec. These motions may represent a stereotyped pattern of launching, carried out without realization that

the support was no longer in position (Fraenkel, G. Z. *vergl. Physiol.*, 1932, 16, 371).

Shortly after (about 0.01 sec later) the plate rebounded and nudged the fly, turning it upside down. Despite this, and despite the apparently strong air currents buffeting it (caused by the violent movement of the plate), the fly continued to beat its wings strongly. It finally righted itself accidentally by colliding with the support and flew out of view of the camera. Its wing beat frequency through these vicissitudes continued approximately constant, as far as could be determined, at about 212 strokes per sec.

Unfortunately no record had been kept of the room temperature, but this is believed to have been in the neighborhood of 75° F.

CARL M. HERGET<sup>1</sup>

*Biophysics Section*

*Medical Division*

*Army Chemical Center, Maryland*

<sup>1</sup>The author wishes to express thanks to Captain Charles W. Tillett, III, for making the record available for analysis; and to Dr. Leigh Chadwick for initiation into some phases of the literature concerning *Musca domestica*.

## I. Q. and Month of Birth

In a recent article (*Science*, 1949, 110, 267) C. A. Mills claims impressive advantages for children conceived during the cold months of the year. He says, "In any field of accomplishment one investigates, the advantages of cold-weather conception stand forth in bold relief."

We have some experience in the Philadelphia public schools that tends to give mild support to this statement. Children admitted to school in September consistently have slightly higher average scores on both aptitude and achievement tests than do children admitted to school in February. Pupils admitted in September generally are those who were conceived during the months of September through March. Children admitted in February are those conceived during the months of April through August.

As was true of E. Huntington's studies (*Season of Birth*, New York: Wiley, 1938; and *J. genet. Psychol.*, 1944, 64, 323), there are factors other than the season of birth that tend to explain why children in the classes admitted in September have higher average scores in tests than children in classes admitted in February. For example, the number of pupils admitted in September is larger than the number admitted in February because such admissions represent a seven-month crop of births in contrast with the five-month crop in February. The larger wave of enrollment in the September classes tends to be equalized with the smaller wave in the February classes because of retardation and failure. More pupils fail from the September classes into the February classes than fail from the February classes into the September classes. The result is that the September classes normally have a smaller proportion of low I. Q.'s than the February classes.

In order to analyze further the possible effect of cold weather on conception a part of Pintner's study (Pintner,

TABLE 1  
PINTNER DEVIATION INTELLIGENCE QUOTIENTS—GRADE 7A, OCTOBER 1948\*

Pintner deviation I. Q.	Month of birth												Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
140-149	2	0	1	1	2	2	1	3	1	1	3	0	17
130-139	9	5	9	12	13	12	9	14	17	14	18	13	145
120-129	36	27	30	20	55	53	59	62	47	40	48	27	504
110-119	74	39	70	76	84	100	123	121	120	93	79	56	1035
100-109	107	104	100	131	141	156	156	177	178	144	153	109	1656
90-99	145	116	153	121	172	166	187	213	160	171	162	149	1915
80-89	138	115	130	123	109	148	167	123	140	133	102	124	1552
70-79	81	53	80	54	77	84	76	80	86	70	79	76	896
60-69	30	15	33	27	28	18	21	27	22	20	22	21	284
50-59	10	9	9	13	8	13	5	5	6	13	5	9	105
Total	632	483	615	578	689	752	804	825	777	699	671	584	8109
Median	93.9	94.3	93.6	96.0	97.1	96.8	97.1	98.3	98.4	96.6	97.9	94.2	96.4

\* Representative sampling of pupils in New York City, Philadelphia, Pittsburgh, Cleveland, and Detroit.

R. and Forlano, G. *J. educ. Psychol.*, 1933, 24, 561) was repeated.

Dates of birth and Pintner Deviation I. Q.'s were available for over 8,000 children chosen as a randomized sample of the beginning grade 7 population in public schools in October, 1948, in New York City, Philadelphia, Cleveland, Pittsburgh, and Detroit. A distribution of these I. Q.'s by month of birth is shown in Table 1.

The month with the highest median is September. The lowest median is for March, the difference amounting to

4.8 points which is statistically reliable, being 7.5 times the probable error of the difference. With two minor exceptions there are I. Q.'s at all levels for all months. Pintner found a difference of 2.25 I. Q. points between September and February averages.

On account of the selective factor just explained that would place in the September classes smaller proportions of low I. Q. individuals, a second study was undertaken by the authors. In this case the records of an entire school were studied for the I. Q.'s of children born in April and October. I. Q.'s were available for the Philadelphia Verbal Ability Test. The distributions are reported in Table 2.

Here again there is a difference in favor of the births in the fall (October births, January conceptions). The difference, while it amounts to 2.5 I. Q. points, is of questionable reliability, being only 2.6 times the probable error of the difference.

There is nothing in the data reported above that denies a slight I. Q. advantage for cold-weather conceptions. On the other hand, there is nothing that would warrant long vacations for the country's obstetricians for the first half of each year.

HANS C. GORDON and BENJAMIN J. NOVAK

*Division of Educational Research,  
Philadelphia Public Schools, and  
Dobbins Vocational-Technical School,  
Philadelphia*

TABLE 2  
PHILADELPHIA VERBAL ABILITY INTELLIGENCE QUOTIENTS  
APRIL AND OCTOBER BIRTHS\*

P.V.A. I. Q.	April births	October births
135-150	1	1
127-134	5	6
119-126	12	23
111-118	29	42
103-110	48	59
95-102	59	55
87-94	36	37
79-86	10	15
70-78	3	1
Total	203	239
Median	102.1	104.6

\* Dobbins Vocational-Technical School, Philadelphia, November 1949.