

AMHERST COLLEGE

Amherst, Massachusetts

DEPARTMENT OF BIOLOGY

November 30, 1940

Professor H. J. Muller
Department of Zoology
Indiana University
Bloomington, Indiana

no form letter sent

Dear Professor Muller:

Our study on human sex ratios was concerned with variations occurring (a) chromologically and (b) within a sibship. In (a) we found that you do get "runs" of one sex or the other but only to the extent that they would be predicted in any case on a simple mathematical basis. In (b) we found a very pretty decreasing frequency of $\sigma\sigma$ with increasing rank in the sibship. The ratio was 116 $\sigma\sigma$ to 100 $\sigma\sigma$ in first pregnancies, decreasing steadily to a level of 101 $\sigma\sigma$ to 100 $\sigma\sigma$ in sixth (plus all higher numbers) pregnancies. In (b) we were able to include miscarriages, premature (dead) births and stillbirths as pregnancies in determining sibship rank for each live birth on which the ratio itself is based.

I don't think there is anything here which Szilard can use, but if he thinks he can, I will be glad to furnish him the actual tables of data. They have not been published because the job itself (analysing some 10,000 birth cards in two different ways) was only about one-quarter completed when I had to leave it for more fly work and I have never had the time to get back to it. El Novitski may well have a lot of useful data for Szilard's needs.

We have had a most beautiful fall in Amherst. Harold Plough is comfortably settled in a small new wing added to the lab. Hope we can see you again soon. Regards from us all.

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IN THIS COLLECTION
Philip T. Lives

no form letter sent

PTI:jb

March 16, 1961

Dr. Philip T. Ives
Department of Biology
Amherst College
Amherst, Massachusetts

Dear Dr. Ives:

Upon my return to this country from Europe, I found Professor H. J. Muller's letter with which he enclosed your letter of November 30th, which was addressed to him.

I wonder whether the 10,000 birth cards to which you refer might give any clue to the question in which I am at present interested, i.e., the question of whether the ratio of boys to girls falls off strongly with the number of siblings if one disregards the sex of the last child born. I am attaching a memorandum which explains why I am interested in this question.

I should be very grateful to you for any advice which you might give in this matter. For the next few weeks I shall be in Washington, D. C., staying at the Hotel Dupont Plaza.

With best wishes,

Yours sincerely,

Leo Szilard

cc: H. J. Muller
Leo Goodmann

AMHERST COLLEGE

Amherst, Massachusetts

DEPARTMENT OF BIOLOGY

March 23, 1961

Dr. Leo Szilard
Hotel Dupont Plaza
Washington 6, D. C.

Dear Dr. Szilard:

My data sheets are not useful directly for your project. But the maternity cards of the Philadelphia General Hospital, from which they came in the early 1940's, may well be just the kind of source you need.

At that time the answers from each patient to a number of questions concerning her previous pregnancies, unsuccessful as well as successful, and the sibship of her children, were recorded on a filing card. A former Honors student of mine, at that time a senior in U. Penn. Medical School, copied off the information I wanted from some 10,000 of those cards, "as an escape from the boredom of empty hours on duty for emergency calls".

Perhaps you can find similarly bored seniors today who will copy off the information you want.

I was interested in seeing if the very slight decrease in sex ratio (in live births) with increasing sibship rank might not be a much sharper decrease when unsuccessful pregnancies were also included in calculating sibship ranks, as much as possible. It turned out for example, that live birth number one was often pregnancy number three (or higher). In my ranking such a birth was not ranked as number one in the sibship but as number three (or higher). The result was a much higher sex ratio in those live births which were, so far as could be ascertained, pregnancy number one.

An analysis on this basis showed the following sex-ratio picture, based on pregnancy number rather than on live birth number, for births classed as "white race".

<u>Preg. No.</u>	<u>♂♂</u>	<u>♀♀</u>	<u>Ratio</u>	<u>% ♂♂</u>
1	990	856	115.7	53.6
2	733	682	107.5	51.8
3	476	457	104.2	51.0
4 & 5	456	441	103.4	50.8
6 & over	307	304	101.0	50.2
<hr/>				
Total	2962	2740	108.1	51.9

March 23, 1961

This was as far as I had time to go in the few weeks of "free period" that I had at that time from fly work. Obviously, the same data should be re-ranked without the "correction" for unsuccessful pregnancies, that is, purely on a basis of live birth rank, not on pregnancy number, and see if the two ratio pictures differ significantly from each other when both are tabulated as above.

I have also "colored race" data, numbering I think a few under 5000, which I could only partially tabulate but which seemed to show the same general picture as the above.

If you or someone else wants to carry this kind of an analysis through to its logical end, I will be glad to have you do so under your own authorship. I see no likelihood of my ever being able to do it myself and in any case I ^{am} {was} not able to work out the kind of statistical study (regression analysis?) which these data demand. At face value the decrease in sex ratio is much sharper, indeed the whole sex ratio picture much more interesting, than anything I came across at that time in the literature *on shifts in sex ratio for one "reason" or another.*

There must be many thousands more such cards on file in that hospital now. Possibly some Chicago hospitals use a similar individual maternity case history system. I think you might get more sibships of the type you want in hospitals with a high proportion of middle to high income patients, where there might be a greater tendency to "close" a sibship when a boy preference has finally been satisfied. Philadelphia General was not in this class in the early 1940's. It seemed to serve chiefly a low income group, maternity-wise, according to my student associate.

Actually, my own impression is that American parents of the middle income group have just as much desire for a daughter after 2 sons as vice versa, and many in fact seem to want a "minimum" 2 boy, 2 girl family. If this is true to a large extent, your study may not produce the sex ratio effect which you expect. Perhaps you can sort the sibships into those terminating with a σ and those terminating with a η and see how the sex ratios of the two groups compare when the last child is omitted from the sibship in each case. (I am afraid this is not a practical solution.)

If I can help you further in any way I shall be glad to do so.

Sincerely yours,

Philip T. Ives, Ph.D.

Philip T. Ives
Research Associate

March 25, 1961

Dr. Philip T. Ives
Department of Biology
Amherst College
Amherst, Massachusetts

Dear Dr. Ives:

I greatly appreciate your sending me the detailed information contained in your letter of March 23rd. I am sending a copy to Leo Goodman and if anything useful occurs to either of us, we might come back to you and trouble you again.

With best wishes,

Sincerely yours,

Leo Szilard