

GENERAL SCIENCE

Chain Letter Lottery

Chain letters, considered a kind of fraud by the Post Office Department, are again being sent around the country, but human nature, not mathematics, prevents their success.

► HUMAN NATURE, not mathematics, prevents successful operation of the "get-rich-quick" chain letters, even if the Post Office Department did not object strenuously on the grounds of the scheme being a lottery.

Every few years there is a wave of chain letters. During the war, in 1942, it was linked to defense stamps and war bonds. In 1935 it involved dimes, whereas this year the ante has been raised and now the amount of money involved is \$2. One kind of letter asks the sending of golf balls.

Even a person continuing the chain is liable to prosecution, Post Office officials declared.

The Post Office regards the chain letter as a species of fraud or lottery, the "collection of money without sale of merchandise" (U. S. Code Title 18, sections 336 & 338).

In the present version of the chain letter, the gullible are presumably persuaded that they will receive \$6,250 for the expenditure of \$2.18, of which \$2 is sent to a person whose name is at the head of a list and 18 cents is spent on stamps on six letters, not counting the cost of writing the letters.

The letter received contains a list of five names. The recipient is supposed to send \$2 to the top name on the list and cross off the name. If you receive such a letter and fall for it, you add your name to the bottom of the list, copy the list and letter five times and send them to five people who you deem sufficiently gullible. So the racket is supposed to go on.

By the time your name climbs to the top of the list, $5 \times 5 \times 5 \times 5 \times 5$, or five raised to the fifth power, or 3,125 persons will have been directed to send you \$2, and your name will have been deleted from 3,125 letters. That is the end of round one. You are now out.

At the beginning of round two, 3,125 persons will each expect or hope that 3,125 other persons will each send him \$2. At the end of round two the number of persons involved will be $3,125 \times 3,125$ or 9,765,626, which is five raised to the tenth power.

This is a geometrical progression. At the end of the third round, if everybody stayed in, the number of persons involved would be five raised to the 15th power or 30,517,578,125. Since this is about 200 times the adult population of the United States, every adult would have received the chain letter on the average of 200 times.

Theoretically, at the end of a fourth round, 95,367,431,640,625 persons would be involved. This is 95 trillion, or 95 million million.

If, on the other hand, only one person out of five of those who receive the chain letter responds by writing his five letters, you would receive, when you reach the top of the list, just \$10. And no one would receive more no matter for how many rounds the game continued in this manner.

One out of five or 20% is just sufficient to keep the chain going. Any less response, and the chain soon fizzles out. And a less response is quite likely. Business men who send out appealing sales letters regard 3% response as remarkably good.

Repeats begin early. Everyone after all lives in a small world. The contagion spreads but slowly from the community where it started. Anyone who has received the chain letter two or three times is already sick of the game.

Geometrical progression, only another name for compound interest, as an easy means to fabulous wealth has always been intriguing. An offer is made like this: "Give me a cent, and double the amount each day for 30 days, and at the end of that time I will buy you a fine automobile—government permitting. I could well afford it, for you would have paid me \$21,474,834.07."

And there is the old story about one cent invested at 5% compound interest at the time of the birth of Christ. If one of your ancestors had had the foresight to make such an investment for you, your fortune today would amount to four globes of solid gold, each the size of the earth.

But the trouble with these dreams is they never work out. Always the chain is broken, and usually quite near the start. That is what will happen with the present wave of chain letters.

Science News Letter, December 12, 1953

SURGERY

New Instrument to Dilate Heart Valve

► VICTIMS OF a serious heart deformity known as "aortic stenosis" have been promised relief through a new surgical instrument developed at the University of California at Los Angeles Medical Center.

Aortic stenosis is caused by rheumatic fever. It involves a calcifying or hardening of valves controlling the flow of blood from the heart to the arteries.

The new surgical instrument was designed by Dr. William Muller. It is a simple dilating tool that is introduced through a chest incision into the aorta, the main trunk from which the arterial system proceeds.

It is designed to tear the calcified valve along its points of fusion or at a weak point in the valve leaflets, permitting a normal flow of blood through the valve.

Dr. Muller has operated successfully upon nine patients. Encouraging results to date indicate that the procedure may help many victims of the deformity, who have found little hope in other approaches.

The technique used by Dr. Muller is similar to that used by Dr. Charles Bailey of the Hahnemann General Hospital in Philadelphia, with the exception that the instrument employed is of a different design.

Science News Letter, December 12, 1953

SCIENCE NEWS LETTER

VOL. 64 DECEMBER 12, 1953 NO. 24

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., North 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

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Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.



Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 1 E. 54th St., New York 22, ELdorado 5-5666, and 360 N. Michigan Ave., Chicago 11, State 2-4822.

SCIENCE SERVICE

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