



GENERAL SCIENCE

## Scientific Facts Now Are Presented in Picture Form

New Technique, Which Originated in Vienna, Now Is Available to American Newspapers in Telefacts

IN TELEFACTS—little picture diagrams, one of which appears on this page,—Science Service is supplying to newspapers and magazines science in a new dress. *Telefacts* will appear in the SCIENCE NEWS LETTER from time to time.

Pictorial statistics were born in Vienna in the early 1920's. Vienna was facing a tremendous educational task. The war had left the city with depleted finances, a terrific infant mortality, appalling housing conditions. The depression had swept away all basis for budgeting. The complete taxation system had to be replaced, houses had to be built, kindergartens and clinics established. The whole task needed the understanding and cooperation of the entire population.

But how could a starving population be interested in housing taxes, in budgeting, in infant mortality? Pictorial statistics were the answer. The Social Museum in Vienna was filled with them; the people came by thousands to study them and their own problems.

In the early 1930's pictorial statistics crossed the Atlantic. Rudolf Modley, who was Assistant to the Director of the Social Museum in Vienna became Curator

of Social Sciences at the Museum of Science and Industry in Chicago. In 1934 he became Executive Director of Pictorial Statistics, Inc., and consultant for many government agencies. Modley is author of "How to Use Pictorial Statistics" and co-author with Louis M. Hacker of "The United States, a Graphic History." This year, in collaboration with Harry B. Coffin, he began production of *Telefact* which is now being distributed by Science Service.

Leading newspapers are now using these pictorial graphs to keep their readers informed of current scientific and economic facts.

Pictorial statistics developed, Mr. Modley explains, from an analysis of the shortcomings of the conventional graphs. One bar chart looks like any other bar chart. Thus a chart showing the growth in the circulation of a magazine may look exactly like one showing the number of deaths from cancer over a period of time. Isn't there something wrong with a graphic method of presentation in which this may happen?

Pictorial statistics turns to the experiences gained from the study of the picture languages. It introduces self-ex-

planatory pictorial symbols to replace the enigmatic bars and curves. A drawing of a hut stands for a hut, a picture of a cow for a cow. A magazine has a standard appearance so that a simplified reproduction of the magazine might be a logical symbol.

With cancer it is not so easy to make a quick direct connection between symbol and subject. Thus cancer deaths may have to be shown by the sword symbol already associated with campaigns for the control of cancer, superimposed upon the gravestone—symbol of death.

### Graphic Message

No matter how difficult the process of designing the symbol, the result must be the same: that the graphic part of the finished chart carries the message and not the legend alone.

Of course charts using pictures have been made before. At some time you must have seen pictures of an enormous Russian soldier and a little American soldier with a caption that the Soviet Union has, let us say, ten times as many soldiers as the United States.

What was wrong? Two things, First the illustration is misleading; there are *more* Russian soldiers, *not bigger* ones!

Second, the method is bad from the graphic point of view because the eye cannot judge areas indicated within irregular shapes with any degree of correctness. You do not know what measure the artist has applied in making the figures. Did he increase the height, area or volume of the American ten times to get the size of the Russian?

The defects of these early pictorial representations lead to the second principle: to show changes in quantity by changing the *number* of symbols, not their size, area or volume.

The application of these two principles makes *Telefacts* easily understandable and statistically correct. They are also attractive and simple. These qualities stand together because they are the result of one and the same problem—elimination, in two different fields. Elimination of all unnecessary statistical detail makes the chart simple. And although elimination of non-essentials is listed third, it really is vitally important if a good chart is to be produced.

By re-introducing pictorial symbols, by making changes in quantity obvious and by simplifying its presentations, pictorial statistics become universally intelligible. Graphic presentations of facts, hitherto dodged by everybody desirous of appealing to a large audience, become desirable.

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