

PSYCHOLOGY

How to Think Straight

It is a Rare Habit, Says a Columbia Psychologist, Who Gives a Test For Thinking and Rules to Keep it Straight

By MARJORIE VAN DE WATER

DO YOU think scientifically?

Most people do not, says Dr. Victor H. Noll, of Teachers College, which is part of Columbia University. If people did think scientifically, the depression could never have occurred, and many of our social ills could not exist.

"Individuals who are in the habit of thinking 'straight' do not invest in enterprises of which they know little or nothing," Dr. Noll declares. "They do not mortgage their homes in order to buy expensive luxuries or get rich overnight. Nor do they look down on their friends and acquaintances who refuse to do these things.

"We still spend millions of dollars annually on worthless or positively harmful nostrums—beauty aids and quack remedies. We buy almanacs that predict the weather for a year in advance. We judge a man by his facial characteristics; we vote for or against him because of his clothes, or his religion, or his wife's personality. We still have mediums, soothsayers, phrenologists, palmists, mind readers, and astrologers patronized and supported by persons in all walks of life."

Do you think scientifically?

Fundamental Habits

In order to develop a scientific attitude, you must develop six fundamental habits of thinking, Dr. Noll says. Look the list over and see how many of these habits you have developed in yourself.

1. Habit of accuracy.
2. Habit of intellectual honesty.
3. Habit of open-mindedness.
4. Habit of suspended judgment.
5. Habit of looking for true cause and effect relationships.
6. Habit of criticism, including self-criticism

Perhaps these need some explanation. The habit of accuracy means accuracy in little everyday matters as well as in programs of scientific research. The everyday matter may turn out to be

much more important than it seems at the time.

"If the chemist makes a very small error in the determination of the exact atomic weight of an element, the population as a whole may be little affected," Dr. Noll commented. "However, if those responsible for the ill-fated Akron had judged weather conditions differently, perhaps seventy-three lives could have been spared. The switchman of packed subway trains may by a slight inaccuracy endanger the safety of several thousand persons. The inaccuracies of bankers and investment houses, willful or otherwise, have caused thousands to lose their homes and the savings of a lifetime."

With or Without Salt

You know, among your friends, the person who is always right, not just in his own opinion but in fact—the person who gives correct change, who remembers dates correctly if at all, who repeats things just as they are said to him, who never hails you as Kelly when your name is Keely. You also know the person whose statements must always be taken with the proverbial grain of salt, not because of any lack of truthfulness but simply because he is so often in error.

Intellectual honesty is another habit that is quite apart from what is usually thought of as moral honesty. Intellectual dishonesty is quite respectable and indulged in by the most honored individuals. It is what makes the salesman wax over-enthusiastic about the merits of the article he wants to sell. It is what causes the public speaker to overlook the arguments of his opponents. It is what makes the person conducting statistical studies or surveys find just what he is looking for.

"No man is intellectually honest, nor has the scientific attitude if he permits personal pride, bias, prejudice, or ambition to cause him in any way to pervert the truth," Dr. Noll declares.

"Individual researches and even large-scale inquiries have been undertaken and carried out to 'prove' that a certain thing is true or that something else is

not true. Under such conditions it is extremely difficult for intellectual honesty to prevail. It seems desirable from every standpoint to cultivate in our pupils the habit of not compromising with truth, at least in so far as truth can be established."

The extravagant exaggerations of Baron Munchausen are examples of intellectual dishonesty. But even worse is the common "stretching of the truth" which is so plausible that it sometimes fools even the perpetrator.

The third scientific habit of open-mindedness should not be confused either with a wishy-washy lack of decision or with eager credulity.

"Eyes and Ears Open"

Instead, Dr. Noll describes it as a sort of "eyes-and-ears-open" policy that precludes the acceptance of any solution as final and ultimate. It means not being a "dyed-in-the-wool" or a "hard-and-fast" advocate of any course from which you are determined never to deviate. It means the constant revision of all your opinions in the light of new discoveries.

You needn't worry for fear the open-mindedness will cause you to lack decision or conviction. Open-mindedness is not timidity; neither is it lack of decision; it does involve the courage to change a conviction made in good faith when conditions or known facts have changed.

"If the physicist had stopped twenty years ago and assumed that his science was complete and closed (as indeed some did), if he had believed that there were no new facts to be discovered, our present-day concept of the nature of matter would probably still be unknown," Dr. Noll said. "However, he kept his mind open, did not accept the atom as the final and ultimate indivisible unit of matter and consequently we have today a greatly revised notion of the nature of matter and of the universe."

"In the social situation, open-mindedness is particularly needed." Dr. Noll adds "We are usually so bound by tradition in politics, finance, and other matters dealing with the public welfare that it seems impossible at times to get anything done except as it has always been done. Campaigns have been

TEST YOUR THINKING WITH THESE QUESTIONS

Ask yourself these questions to find out whether you could qualify as a person with a scientific attitude.

1. Does your fish ever grow between the time you catch it and your telling of the catch?
2. If you meet a neighbor out with a pretty girl, do you immediately assume that he is in love with her?
3. Do you often "stick to your guns" because you hate to admit you may be wrong even though you know you are?
4. Do you believe that if the groundhog sees his shadow, six weeks of winter will ensue?
5. In checking over the bills sent you, do you notice errors at your expense more readily than those in your favor?
6. After you have made a decision, do you ever wonder whether you are right?
7. Do you seek advice from experienced persons when you are making a decision?
8. Are you inclined to check what is told you against the known facts?
9. Can you always be convinced of the truth even when it is something contrary to your interests?
10. Did you ever vote for a man just because you liked his voice?
11. Do you ever buy goods just because you like the personality of the salesman?
12. Are you careful to avoid overstatements even when they add to the story?

A negative answer to all questions except numbers 6, 7, 8, 9, and 12 will mark you as a most unusual person—or else will show that you are not honest with yourself.

made many times on the principle of upholding the good old traditions at any cost. Often reports of survey commissions that included in their membership the best minds available have been discarded because they did not agree with the convictions of their sponsors."

Haven't you had your own troubles in combatting this lack in your associates of freedom in revision of judgment?

Very closely related to open-mindedness is the habit of suspended judgment.

The first, Dr. Noll explains, is a willingness to consider all the facts, including new ones as they arise. Suspended judgment means a waiting and searching for such facts before a decision is made.

Don't jump at conclusions, don't make snap judgments, is the rule for those who would develop this fourth scientific habit of thought. Children jump at conclusions and so do many grown-ups who still preserve child-like habits of thought. You needn't be slow, but be cautious in forming any conclusions.

The fifth habit of scientific thought is a much more difficult one to develop—the habit of looking for true cause and effect relationships.

Just because two things occur together they need not be causally related. If you have a quarrel with your neighbor, are you willing to believe it is because you spilled salt at the breakfast table? If a business project succeeds, do you conclude that the success was due to the fact that you began it on a Friday? If the horse you bet on wins, do you think it is because the animal's name is "lucky for you?"

Scientists do not escape from lapses so far as this habit is concerned. Where they find that two conditions commonly occur together, even thoughtful persons are likely to assume a cause and effect relationship although evidence for such a relationship is lacking. Sunspots have thus been blamed as a cause for wars as well as weather. And wars in their turn have been held responsible for changes in the ratio of male births to female. And such major events as the depression have been considered the cause of all ills descending upon mortals at or near the same time.

Not Cause and Effect

Obviously the relationship might be of another kind than that of cause and effect. If thunderstorms are frequent disrupters of Fourth-of-July festivities it need not be that the explosion of firecrackers produces rain. It could well be that both showers and celebrations are likely to occur in July.

The final habit in Dr. Noll's list is that of criticism. By that he doesn't mean fault-finding or a destructive attitude, although even this fault is of greater assistance to the promotion of science than is a blind acceptance of all that is heard or seen in print.

No, what he means is the ability to "see the nigger in the woodpile," to

weigh arguments and to detect fallacies.

These six habits do not by any means exhaust all the virtues that might be listed as contributing to the true scientific attitude. But if you have them all, you may consider yourself pretty well off. Dr. Noll says:

"There may be other habits that contribute to the scientific attitude. Other habits might be mentioned and defended as elements in it. Nevertheless, it may be said in defense of those listed that an individual who is habitually accurate, who correctly interprets cause and effect relationships, who is open-minded, who does not jump at conclusions, who is intellectually honest, and finally, who is critical—would be possessed not only of the scientific attitude but also of a certain degree of uniqueness."

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OCEANOGRAPHY

Unexplored Coastal Waters To Be Studied

SECRETS of the sea in the little-known offshore area between Lower California and Costa Rica are to be sought soon by scientists of the Scripps Institution of Oceanography at La Jolla. A great triangular stretch of ocean is at present, for scientific purposes at least, a "no-man's water," because it is little traversed by commercial vessels which might take incidental oceanographic data, and no well-equipped expedition has ever visited it.

For the expedition which will fill in this gap in the scientific map of the Pacific, the Scripps Institution is using recently received gifts from Robert P. Scripps and from the estate of the late Ellen Browning Scripps, together with an appropriation from its own funds, to refit its boat, the *Scripps*. Although only a 64-footer, this boat will be able, when reconditioned, to work several hundred miles out at sea and at any depth to 3,000 meters, thus making it possible for the Scripps Institution to add much to the knowledge of a rather large section of the Pacific about which little or nothing is known.

In altering the vessel, orders have been placed for a Diesel engine to replace the present gasoline engine, for a new winch for deep-sea work.

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