

PSYCHOLOGY

Scientists Seek Out Causes Of Person's Mental "Set"

In Very Early Childhood All Forms of Social Contact Begin Never-Ending Work of Building up Attitudes and Prejudices

THE ATTITUDES and prejudices that are so powerful in shaping man's actions for or against individuals, groups, or causes, are not inborn, yet they do depend on the accident of birth. In very early childhood, the influence of the social group begins its never-ending work of molding the mental "set" of the individual.

The careless comments of elders, the deliberate instruction of teachers, the voice of the radio, the talkies, and the press, all join with many other forces to contribute toward making the child into an adult who is militaristic or pacifistic, tolerant or tyrannical, liberal or conservative. Psychologists have recently been devoting considerable research to efforts to measure the attitudes of many different types of individuals and also to evaluate the effect on attitudes of various educational or influential devices.

Something of the way attitudes develop is told in a report to the *Journal of Social Psychology* by Dr. D. D. Droba of the University of North Dakota.

"If an individual is born into a society that is imbued with the war system, he will quickly become favorably disposed toward war," he writes. "If an individual is born into a society without a war system, such as the Eskimos, he will either develop no attitude toward war or he will develop one of an unfavorable sort.

"An interesting experiment had been performed by a Polish psychologist, F. Baumgarten. The date of the experiment was 1918, the place was Warsaw. It was performed during the German occupation of the Polish territory. The results were buried under the ground for fear that the Germans might seize them and punish the experimenter.

"She submitted a questionnaire to 360 Polish boys and 340 Polish girls to find out why children hate. Among the questions asked was one with respect to happenings that affected them most.

"The children cited a number of striking incidents such as explosions, the

cries or sobs of wounded or dying, the burning-up of the bridges and the plundering of the German soldiers.

"Another question was as to what they wished for the enemy. A series of punishing statements were given such as death, falling off a four-story building, and that all should go to hell alive. . ."

Thus do little children learn attitudes of hate.

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CHEMISTRY

Earth's Rarest Elements Held Once Abundant

WHY SOME elements are more abundant than others is a question that has long interested scientists because of its importance in any theory of the evolution of the elements. Certain relations to atomic numbers have been found, and many hypotheses have been proposed.

However, it does not seem to be always the most stable atoms that survive the atomic struggle for existence. For

instance, Drs. W. M. Elsasser and R. Guggenheimer point out, as reported in the *Comptes Rendus* of the French Academy of Sciences, that the noble gases neon, argon, krypton, xenon, which disdain to form any chemical combinations whatever with other elements and are among the most stable of the atoms, are exceedingly rare on this earth—whereas the elements which stand on either side of them in the periodic table, the metals sodium, potassium, rubidium, caesium on one side, and the acid-forming halogens fluorine, chlorine, bromine, iodine on the other side, which are chemically the most active elements known, are millions to billions of times more abundant.

By the loss of an electron from the nucleus, each of these noble gases is stepped up one atomic number and transmuted into the metal which stands next to it in the table—neon to sodium, argon to potassium, etc. By the loss of a positron, or of an alpha particle and an electron, from the nucleus, each is degraded one atomic number into the halogen just preceding it in the table—neon to fluorine, argon to bromine, etc.

Drs. Elsasser and Guggenheimer suggest that originally these noble gases were abundant in the earth's atmosphere, but that by millions of years of bombardment by neutrons they have been converted into these other elements, with have been incorporated in the earth's crust where we now find them in abundance, while the atmosphere has been almost completely denuded of the noble gases.

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PHYSIOLOGY

Spring Fever Really a Disease; Treatment, Cod Liver Oil

SPRING fever is not a joke after all, it now appears from latest medical research. It is actually a disease and physicians of the future will have to consider it as such and treat it "conscientiously with irradiated cod liver oil and sunshine, not with the sulfur and molasses of our fathers." This is the opinion of Dr. Joseph T. Smith, physician and assistant editor of the *Bulletin of the Academy of Medicine of Cleveland*.

Spring fever, the disease, is a condition in which the body's stores of calcium are depleted.

"Capacity for work is lowered, physical fatigue easily occurs, and the patient's liability to disease is increased."

Dr. Smith quotes those words from a scientific description of calcium deficiency. But you might have written them yourself as a description of your own state on these first warm days of spring.

A real drop in the amount of calcium in the blood of normal persons during the winter months has been observed by Dr. J. W. Mull of Western Reserve Medical School, Dr. Smith reports, adding the following: (Turn Page)

"As the sun rises higher in the sky with advancing spring, in some way the strengthening ultraviolet rays correct this calcium deficiency. Possibly this result is due to the irradiation of the ergosterol, which is a normal constituent of the skin; or possibly the ultraviolet rays ionize the calcium in the tissues so it is more diffusible.

"Whatever the method of their action, it seems true that 'ultraviolet rays are the natural stimulus of that great metabolic organ formed by the living cells of the epidermis.'"

Scientific evidence thus seems to add its weight to the natural inclination to get out into the spring sunshine.

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MEDICINE

Sunburn no Assurance Of Rickets Prevention

JUST because Johnny has a good coat of sunburn does not mean that he is being protected against rickets, it appears from studies reported by Drs. Arthur Knudson and Frank Benford, Albany Medical College, to the American Society of Biological Chemists. Rickets is a disease of the bones characterized by bowlegs and bulging forehead.

The rays of sunshine that produce sun tan, or erythema as scientists call it, are not as effective as other wavelengths in curing or preventing rickets, the Albany investigators found. The rays that are most effective in preventing or curing rickets are shorter, or farther away from the visible light, than the rays that produce the deepest sunburn. It so happens that at the wavelength where the rickets-preventing rays are at their peak, the sunburning rays have least effect.

Ultraviolet lamps and other radiation devices used by physicians and in the home for health protection are generally rated by the amount of sunburn they produce. Dr. Knudson's discovery shows that in some cases lamps that produce satisfactory and even painful sunburn are not the most effective means of protecting against rickets. In the summer sunshine of Albany, where Drs. Knudson and Benford did their work, it happens that the sunburning qualities of natural sunlight coincide with sufficient rickets-preventing qualities to make the sunshine give health protection as well as coats of tan. In the winter sunshine of the same region the anti-rachitic rays are practically absent although it is possible to get sunburn through long exposure to the winter sunshine.

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METEOROLOGY

Analysis of Stratosphere Air Verifies Pre-Flight Estimates

THE FLYERS who have recently ascended into the stratosphere were not traveling in totally unknown territory. True, no one had preceded them to such heights, but scientists working at their desks, without moving off terra firma, had formed an estimate of conditions to be found there.

Using as a basis for their calculations such data as those obtained from observations of the way sound travels along the surface of the earth, and the way radio signals are returned from the electrified reflecting layer of the atmosphere, physicists were able to calculate the composition of the atmosphere at great heights. Their calculations have now received verification from analysis of the samples of air brought down from a height of nearly 12 miles by the Soviet balloon "USSR."

Drs. H. B. Maris and E. O. Hulbert, working at the Naval Research Laboratory, and Dr. B. Gutenberg at the California Institute of Technology, discovered from their calculations that the air high above the earth, as well as that near the surface, is warmed by the sun during the day and cooled by its own radiation at night. This daily variation in temperature must give rise to winds, they reason. And winds inevitably mean a mixing of the air that would cause the composition to be uniform.

The proportions of the gases in the air remain the same, they conclude, up

to the great height of about 100 kilometers or 62 miles, except for ozone, which exists in greater proportion above 30 miles than it does at sea level.

Dr. Gutenberg has based his results, besides, on the spectrum of the auroras and on the height at which meteors appear. Furthermore, the fact that helium enters the atmosphere from the ground in such quantities that it should form a noticeable part of the stratosphere but that only traces have been observed, seems to indicate that this gas escapes from the atmosphere into the interstellar space, and the same seems to be true with hydrogen. The conclusions of Dr. Gutenberg are that we have very probably an increasing temperature in the stratosphere, beginning at a height between 30 and 40 kilometers (about 20 miles), no noticeable change of composition at least until a height of about 100 miles, no hydrogen at any height, a slowly decreasing amount of oxygen at heights of some hundred miles and, probably, small amounts of helium or water vapor or neon at very great heights. The principal gas at any height is nitrogen.

Since the samples obtained by the "USSR" showed the same proportions of oxygen, nitrogen, and other gases as are contained in the air we breathe at sea level, the physicists look upon this finding as evidence of the correctness of their theoretical predictions.

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PHYSIOLOGY

Effects of Alcohol on Mind and Body Summarized

WITH the legal status of alcoholic beverages settled, discussion now returns to the question of how alcohol affects the human body and mind.

Dr. Haven Emerson, professor of public health practice in Columbia University, has listed in his new book *Alcohol, Its Effects On Man* (D. Appleton-Century) the following fifteen points on which he says medical scientists who have studied the subject agree:

1. Alcohol is a narcotic which, by depressing the higher centers, removes inhibitions.
2. Outside of the nervous system and the digestive tract, alcohol used as a beverage has little demonstrable effect.
3. It is a food, utilizable as a source of energy and a sparer of protein, but it is such only to a very limited extent.
4. It is improbable that the quality of human stock has been at all injured or