

GENETICS

Heredity and Emotions

Dogs that have been bred to produce pure strains will be studied in the hope of finding the effect of environment on inherited traits.

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► THE INFLUENCE of heredity on the emotion and intelligence in dogs will be studied in a quarter million dollar research project financed by the Rockefeller Foundation in the hope of learning more about human beings as they are born and the way they grow up.

The Rockefeller Foundation grant of \$282,000 to the Roscoe B. Jackson Memorial Laboratory, is for the study of "the genetic factors in intelligence and emotion in mammals." The main reason for using dogs in the early part of the project, Dr. C. C. Little, director of the laboratory, explained, is that genetic experiments require pure strains differing as much as possible in the characteristics it is proposed to study. The production of such pure strains from a mixed population is a long and tedious process.

Dog breeders have already done much of the preliminary work, and we have breeds differing not only in size and shape but in affection, pugnacity, intelligence and other mental and emotional characteristics. For most of these, the dog breeds are not as uniform as they are for conformation and color.

With respect to some traits, such as trailing capacity of blood hounds or the pointing characteristics in pointers, the breeds are already highly uniform. By selection of outstanding strains within such breeds and by crossing with other breeds which never show these characteristics, it will be possible to undertake genetic experiments which could be done in no other species of mammal without generations of selective breeding to produce pure strains.

Parallel with such research in pure genetics, it is proposed to explore the extent to which the behavior of dog breeds is the result of each generation's being brought up in a particular "dog society." Thus young pointers are nursed and reared by a mother who is herself a pointer.

What would happen if pointer pups were raised by chows? Or even what

would happen if a very young pointer embryo were transplanted into the uterus of a chow foster mother and grew up from the start in a chow environment both before and after birth? Nobody knows. Furthermore, nobody knows what would happen to a puppy if it were raised entirely separated from other dogs. Since the matured trait such as intelligence or emotional expression is always the resultant of genetic and environmental influences cooperating during growth and development, a complete understanding of such traits can only be achieved by a research approach which considers all aspects of the problem.

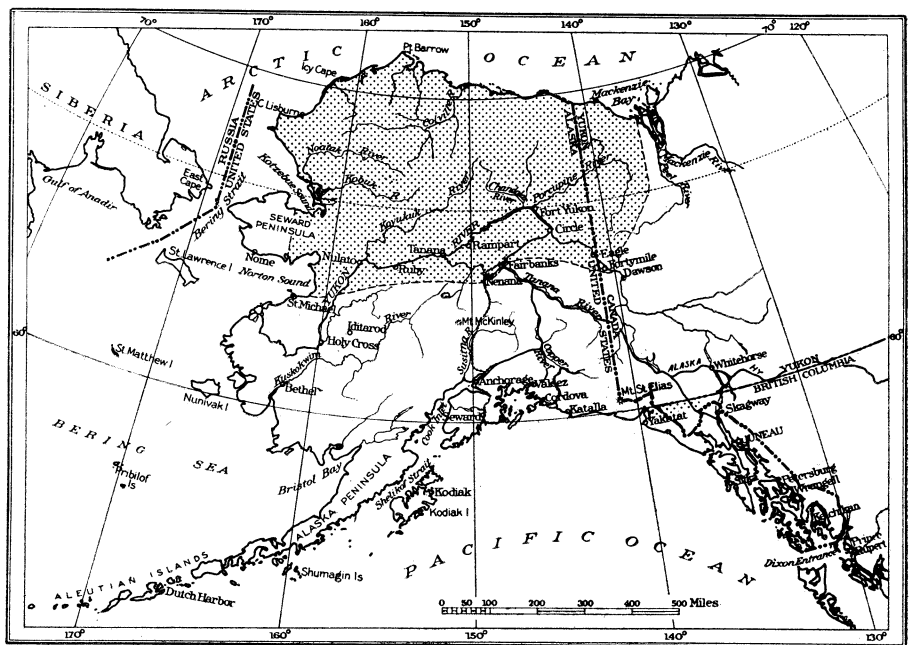
Dr. Little pointed out that for a purely genetic approach to the problems of inheritance of emotion and intelligence, neither monkeys nor apes would be of much use until generations of selective

breeding had been undertaken to produce uniform strains for crossing.

For several important characteristics, he said, such as affection, cooperation, and persistence, dogs much more closely resemble human beings than do monkeys.

It is practically impossible for an ape to persist in a specific project for any length of time. Dogs will spend hours digging for a rat. Instances are on record where pointers and setters have "frozen" in their characteristic positions when game has been flushed, and have maintained this posture until they literally froze to death. To produce strains of apes exhibiting such a single-minded persistence would be an enormously difficult undertaking requiring many years.

It is also proposed to use other mammals in the investigation. Among the highly inbred strains of mice which the Jackson Laboratory has produced for use in cancer research, definite differences in intelligence and emotional traits have been noted. Some experimentation has been begun to discover how much these differences can be modified by changing the environment. The extent to which a pugnacious strain can be turned to pacifists by various kinds of training has



VIRGIN RESOURCES—Maps of northern Alaska, made by the Geological Survey for the Army Air Forces, reveal in detail an area believed to be rich in resources. The new maps, which will not be released to the public until after the war, will cover a total of approximately 292,000 square miles, or as much territory as the combined areas of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia and Tennessee.



WESTERN ALASKA—The village of Tuliksak, situated on the Kuskokwim river, is typical of native settlements in the interior of the Territory. The Kuskokwim is the second largest river in Alaska.

been under investigation by Dr. J. P. Scott.

Further studies along this line will be undertaken, and guinea pigs, rabbits, and hamsters will also be utilized in connection with various phases of the problem.

The Hamilton farm will be used as headquarters for this project. This is a 58-acre estate recently given to the Lab-

oratory and located just outside Bar Harbor, Maine. It has barns, shacks and farm buildings which can be easily converted to serve excellently for this purpose.

It is planned to enlist the cooperation of farmers in the vicinity to rear the dogs bred in connection with the experiment. This method has been widely used by British dog breeders and will greatly reduce the expense of breeding operations.

Science News Letter, May 19, 1945

GEOLOGY

Untapped Resources

See Front Cover

➤ ALASKA IS in the limelight as a vast storehouse of essential minerals, as yet undeveloped, as a result of wartime investigations made by the U. S. Geological Survey and the U. S. Bureau of Mines. Ground explorations were made and photographs, like the one on the front cover of this SCIENCE NEWS LETTER, were taken from airplanes over great stretches of country until now little known.

This American territory, one-fifth the size of the United States proper, is already well-known for its gold and copper production but it has produced other

minerals, both metallic and non-metallic, which have contributed largely in the war. Since Alaska has been an American possession, the total mineral production has a value of approximately \$900,000,000, of which gold accounts for about 70% and copper for about 35%. The other commercial minerals mined include silver, tin, tungsten, lead, chromium, platinum metals, antimony and mercury.

Considerable quantities of other minerals that have not yet been brought into widespread commercial production include iron, nickel, zinc, molybdenum and bismuth. Asbestos, barite, garnet, graphite and sulfur are among the available non-metals.

The lack of transportation has focused mining in Alaska on the production of minerals, such as gold, that have high unit values in comparison with their weights. In postwar days, with improvements in transportation and the introduction of mechanized mining, heavy commodities of lower unit values will be produced. An expected development in hydroelectrical energy will prove of great assistance in this heavy mining.

The aerial photographs taken by the government cover nearly 300,000 square miles of territory. They reveal topographical features and geological structures of value to mineral prospectors, and the terrain through which transportation routes would have to be provided.

Science News Letter, May 19, 1945

MEDICINE

More Doctors in 1944, But Fewer for Civilians

➤ THE NUMBER of physicians in the United States increased by 3,306 in 1944, the American Medical Association has reported. Many more than this number, however, were added to the armed forces as medical officers during the year, so there was a decrease in 1944 of the number of doctors available to civilians.

There were 6,933 additions to the medical profession in 1944. These were the men and women who in that year received their first license to practice medicine and surgery. During the same year 3,627 physicians died.

Considerably higher additions to the medical profession might have been expected because of the accelerated program for medical education during the war.

"While two classes were graduated from most medical schools in 1943," the medical association explains, "the number of physicians added to the profession in that year did not increase, since many physicians who obtained M.D. degrees in December of that year were not able to receive licenses until early in the year 1944, owing to administrative details. In 1944 the number in this group was 979 more than in the previous year."

Pennsylvania gained the greatest additional number of doctors of any state. The number added was 821. New York and Ohio added more than 600 and California and Missouri more than 300. No one was added to the number of doctors in Nevada, New Mexico or Wyoming.

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