

HEMATOLOGY

Blood Group Find May Affect Paternity Tests

► IF MEN are like rabbits, use of blood groups in paternity cases may need to be reconsidered.

This is the implication of a finding by Dr. Carl Cohen of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine. A rabbit, he discovered, may have a blood group that neither of its parents had. The use of blood groups in human paternity cases, Dr. Cohen pointed out, is based on the premise a child cannot have a blood group antigen not present in either parent.

Of course, the rabbit findings cannot be taken as holding true for humans. It is possible, however, Dr. Cohen said, that the same phenomenon might occur in humans, that is, that a child might belong to a different blood group than either of its true parents.

Appearance in the rabbit offspring of a blood group not present in either parent is one of the few cases ever found in mammals.

Dr. Cohen's findings upset another previously held theory. That was that one gene, or unit of heredity, gave rise to one red blood cell antigen. These antigens are what distinguish the blood groups. Dr. Cohen found in rabbits that two genes can give rise to three such antigens.

Through breeding experiments, Dr. Cohen was able to work out the pedigree of a rabbit family showing the inheritance of A, D, and the new I blood group antigen. Details of his experiments are reported in *Science* (May 25).

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ANIMAL PSYCHOLOGY

Chimpanzees Are Called "Rugged Individualists"

► A CHIMPANZEE is a "rugged individualist," Dr. Henry W. Nissen reports in *American Anthropologist* (June).

The 57 chimpanzees at the Yerkes Laboratories of Primate Biology, Orange Park, Fla., even though they are all of the same species, are as distinctive as an equal number of people from any place on earth, Dr. Nissen says.

They differ, not only in physical appearance, but also in intelligence, habits, and even social graces. Fingerprint patterns are as individually distinctive as they are in man.

Some of the Orange Park baby chimps, brought up in a nursery complete with diapers, cribs and playpens, become thumb-suckers and, in some, thumb-sucking may take the place of a natural chimpanzee way of rocking or swaying the body back and forth when bored or tense. However, some of the nursery-reared infants become confirmed thumb-suckers, others do not.

Two of the Orange Park animals, Jenny and Jojo, are half sisters. They were born

within two months of each other, were raised together in the nursery, now share the same cage and have become very close friends. But Jojo has a special talent for using tools that Jenny totally lacks.

"Give Jenny a stick," Dr. Nissen states, "and she may chew it, or at most use it to clean her ears."

Jojo selected from an oak tree in her enclosure a stick of proper length, thickness and strength, and put it to good and ingenious use. She poked it through the meshes of the hardware cloth door to flip the light switch on and off until the switch wore out.

When a guard was placed over the switch, she managed to use a stick to unscrew the light bulb. She screwed and unscrewed it, but she never broke the bulb.

None of the other animals ever did anything resembling this, although they had the same opportunity and could, of course, have "aped" Jojo.

In their relations to other chimpanzees, Jenny shows much more social intelligence. She and Jojo are both rather aggressive and dominating females, but Jenny seems to have a better sense of social values and knows when it is wiser to compromise or give in.

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ENTOMOLOGY

Boll Weevils, Medflies And Aphids Increasing

► BOLL WEEVILS are coming out of hibernation in the South in record numbers.

Spotted alfalfa aphids are spreading throughout much of the West and Southwest, while the Mediterranean fruit fly is extending its attack on Florida's citrus crop. Pea aphid infestations are heavy in the Midwest.

The boll weevils are not yet fully developed, but unless the weather is extremely dry, cotton farmers can expect the biggest attack on cotton so far. The weevils are especially numerous in Georgia, South Carolina and Louisiana, and are coming out of hibernation in Texas' lower Rio Grande Valley.

The Mediterranean fruit fly, which has invaded continental United States for the first time in nearly 30 years, has spread in Dade County, Fla., despite efforts to restrict it. Federal officials foresee even more stringent restrictions on fruit transportation out of the state. Infested fruit is being destroyed.

The spotted alfalfa aphid, which first became a serious problem in this country only two years ago, is multiplying in southern California, Texas and Oklahoma but is decreasing in Kansas and Missouri.

Alfalfa in Missouri, Iowa, Illinois and Pennsylvania is host to pea aphids, and peas in Colorado and Idaho are infested. Wisconsin is threatened.

Grasshoppers, which will not be a serious threat until summer, have extended their rangeland in California.

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IN SCIEN

HORTICULTURE

Increase Berry Plants' Tolerance to Heat Cure

► HEALTHIER STRAWBERRY PLANTS have been made possible by storing them at low temperatures before giving them insect-killing heat treatment.

This discovery, made by three U. S. Department of Agriculture scientists, will insure survival of strawberry plants that have been immersed in water at 127 degrees Fahrenheit for two minutes, the treatment used to kill parasitic nematodes and the cyclamen mite.

The scientists, Drs. A. C. Goheen, J. R. McGrew and J. B. Smith, found that tolerance of dormant plants treated directly from the field was closely related to the air temperature just before digging. Plants dug in late fall and late spring, when the mean air temperature at the Maryland field was above 40 degrees Fahrenheit, were killed by the two-minute hot water immersion. Those dug in midwinter, when the mean air temperature was below the middle 30's, survived the treatment.

Other tests in which plants were heat-treated before and after cold storage further showed that those plants cold-stored before treatment tolerated the heat better than those not exposed to cold first.

When plants were cold-stored three to four months and then treated, 99% survived, compared with 40% of those which were treated before storage. The tests also showed that, when plants are re-stored after treatment, cold storage should be as short as possible. The tests were made on Blackmore plants.

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TECHNOLOGY

Plastic Preserves Ships' Cargo Tanks

► SARAN, the material in which housewives wrap food, is being tested as a pre-Service tankers to help reduce rust and corrosion. The plastic cuts descaling, cleaning

The Navy has sprayed Saran inside the tanks of 15 Military Sea Transportation Service tankers to help reduce rust and corrosion.

The plastic cuts down descaling, cleaning and structural replacements. Tanks not coated with the material must be regularly drained and flushed, and loose deposits at the bottom must be removed by hand.

Saran is kept in liquid form by a chemical which evaporates rapidly. After the plastic has been sprayed on tank walls, it dries quickly, leaving a dense coat which resists grease, oil and acids. It is not a complete rust and corrosion preventive.

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CE FIELDS

MEDICINE

Single Disease May Cause Three Kinds of Tumors

➤ A THYROID DISEASE that occurs almost exclusively in women may cause three different types of thyroid tumors.

This suggestion results from research by Dr. Stuart Lindsay, University of California School of Medicine pathologist, in which he examined thyroid glands removed from 302 patients treated in the last 30 years for Hashimoto's disease.

Hashimoto's disease is a type of goiter. There is overmultiplication of the thyroid gland, and the gland swells. It is not a malignant process and usually can be treated satisfactorily by surgery, X-rays or thyroid extract.

The fact that 99% of Hashimoto's disease occurs in women leads physicians to believe it may be caused by a hormonal defect. It is about the third most prevalent type of thyroid goiter, following non-toxic endemic nodular goiter and Graves' disease.

Dr. Lindsay said the occurrence of tumors in these glands—38 adenomas, 35 cancers and 7 malignant lymphomas—was significantly higher than could be expected on the basis of chance.

Dr. Lindsay said this indicates the tumors may have arisen from the growth process of Hashimoto's disease. It has been believed that the cancers arise from previously benign tumors of the thyroid gland.

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ANIMAL PSYCHOLOGY

Gastric Ulcers Produced Experimentally in Rats

➤ GASTRIC ULCERS have been experimentally produced in rats by psychological conflict.

This evidence that ulcers may have psychological origin was found by Dr. William L. Sawrey of the University of Colorado School of Medicine, Denver, and Dr. John D. Weisz of Aberdeen Proving Grounds, Aberdeen, Md. The work was done while both were at the University of Nebraska.

Hungry and thirsty rats were kept in a rectangular box with a brass rod grid floor. Food and water were placed in one end of the box but, between the rats and the food and drink, one section of the floor was charged electrically. Each time an animal tried to get to the food and drink he received an electric shock.

Every 48th hour the current was turned off for an hour and the animals allowed to eat and drink their fill. The rats stayed in the box for 30 days. A control group

of five animals were also made hungry and thirsty but were not shocked when they tried to reach food and drink.

At the end of the 30-day period, no evidence of gastric ulcer was found in the control animals.

Six out of six of the shocked animals developed ulcers.

Three other rats were subjected to the shocks but did not develop ulcers. That was because the shocking apparatus broke down on the 20th day and these three animals could eat and drink at will without punishment for about four days.

The rest from the conflict situation and consequent reduction of anxiety were believed to account for their not getting ulcers. Lack of ulcers in the control animals shows the ulcers were not caused by hunger and thirst, the scientists report in the *Journal of Comparative and Physiological Psychology* (June).

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GENERAL SCIENCE

Manpower Group Warns Of Professor Shortage

➤ THE CURRENT SHORTAGE of high school teachers is about to blossom into a shortage of college professors.

A forewarning that colleges and universities are vulnerable to the same problems now facing the nation's secondary schools was made by the Engineering and Scientific Manpower Commissions in New York.

The Commissions said the nation saw a "catastrophic drop" in the number of teachers in training starting in 1950. At the same time, the growing need for more schoolrooms and more teachers because of a surge of "war-born youngsters" could also be noted. Very little was done in anticipation of those impending problems, the Commissions state.

"Now," they warned, "the pattern is about to be repeated in our colleges."

Part of the problem facing the nation's colleges and universities is an extension of the same problem facing the secondary schools—too many students. Another problem is that the appeal of industry for more scientists and engineers is as tempting to the college instructor as it is to the high school teacher.

The Commissions reported that, during 1954-55, a survey by the National Education Association showed it was becoming more and more difficult for colleges and universities to fill vacancies in their teaching staffs. This was particularly true in engineering and the sciences.

Out of 673 private and public colleges and universities, 246 said they had vacancies for science instructors on their staffs. Another 200 institutions reported they were having difficulty finding qualified instructors in engineering and the sciences.

The Commissions concluded that, unless action is taken immediately to correct this predictable shortage, the situation will "rapidly worsen."

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INVENTION

Patent Ways to Produce Possible New Food Source

➤ TWO TEAMS of scientists have received patents for ways to produce a new and potential world food source.

Both teams received one patent each dealing with the one-celled plant alga called *Chlorella*, from which a food substance has already been made in the laboratory. Protein, lipids and carbohydrates can be produced from *Chlorella*.

One process involves the cultivation of the one-celled algae in a nutrient medium in the presence of light and a sufficient supply of carbon dioxide. The nutrient medium consists of an aqueous solution of fixed nitrogen and inorganic mineral nutrients, and trace amounts of micro-nutrients. This is the invention of Herman A. Spoehr and Harold W. Milner of Palo Alto, Calif. They received patent No. 2,732,661.

Drs. Jack Edgar Myers and Jesse Neal Phillips Jr. of Austin, Texas, received patent No. 2,732,662 for the mass culture of the algae. Basing their invention on the discovery that the growth of the algae is affected by the dimensions of the container in which the cells are grown, they developed a process for best growth.

Both teams assigned the patent rights to the Carnegie Institution of Washington, Washington, D. C.

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ENGINEERING

Find Reasons for Nosewheel Shimmy

➤ THE BASIC CAUSES of dangerous nose-wheel shimmy in aircraft have been uncovered by Dr. William J. Moreland of the Air Research and Development Command's Aeronautical Research Laboratory at Wright Air Development Center.

He developed a mathematical formula that accurately told the causes of shimmy on all the aircraft to which it was applied. A nosewheel model, on which the conditions affecting the nosewheel's structure and operation could be varied, was used to check the theory.

Full scale tests on aircraft later confirmed Dr. Moreland's findings.

One prediction of the theory was that the pneumatic tire, instead of being the basic cause of shimmy as thought by French, German and British engineers, in most cases actually exerts a stabilizing influence. Further, the theory predicted that the fundamental cause of the instability's more violent forms could be found in the supporting structure.

Scientists studying the problem found that shimmy is a rapid build-up of high-frequency oscillation accompanied by a shudder that progresses along the aircraft from the nose to the tail surface.

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