

PHYSICS

Atom's Core Studied

► A PICTURE of atomic cores was drawn by some 300 of the world's top nuclear physicists gathered at the Seventh Annual Conference on High Energy Nuclear Physics at the University of Rochester, Rochester, N. Y. (See pp. 261 and 267.)

About 75 of them came from more than 20 foreign countries, including Belgium, Bolivia, Czechoslovakia, Poland and Norway.

One topic among the important advances in physics was the recent smashing of a basic law of physics, the "principle of conservation of parity." Pioneer experiments at Columbia University and the National Bureau of Standards have shown elementary particles must, in addition to their other properties, be assigned a direction associated with the spin. (See SNL, Jan. 26, p. 51.)

Before the overthrow of this long-held idea concerning the symmetry of space, scientists had thought the mirror image of a nuclear reaction was identical with the reaction. Now they have found this is not true, at least in two specific cases.

The two physicists who suggested that

parity might not be conserved, Dr. C. N. Yang of the Institute for Advanced Study, Princeton, N. J., and Dr. T. D. Lee of Columbia University, both attended the Conference.

The discovery removed a major obstacle in the path toward explanations of behavior patterns for some of the 20-odd particles found flying out from atomic nuclei under various conditions. They are known as "strange" particles because existing theories have no place for them.

These include hyperons, which are heavier than protons and neutrons, and the so-called K-mesons.

The particles are found in cosmic rays and are created artificially in giant atom smashers such as the one now going into operation in Russia, the world's largest. It is designed to reach energies of ten billion electron volts compared with the six billion electron volts of which the largest United States accelerator, the bevatron in Berkeley, Calif., is capable.

Science News Letter, April 27, 1957

GENETICS

Deny Male-Only Heredity

► LONG ACCEPTED evidence for the idea that some traits are inherited only through the male line was refuted by Dr. Curt Stern, zoology professor at the University of California.

The scientist delivered the presidential address at the annual meeting in Ann Arbor, Mich., of the American Society of Human Genetics, which met jointly with the American Society of Physical Anthropologists.

Dr. Stern said the evidence in favor of male inheritance is contained in 17 case histories of families in which some strange physical attribute, "porcupine skin," extremely hairy ears and webbed toes are examples, supposedly has been passed from generation to generation of males.

In all such cases the strange trait supposedly has been transmitted to all male descendants, only to the males and only by males. Such a mechanism is known as Y-linked inheritance. It is so called because of the Y chromosome, which has been found only in males and which is widely believed to determine sex.

Dr. Stern reported that he has conducted a diligent search of the records pertaining to the 17 case histories, and has not found the kind of unequivocal evidence necessary to establish the validity of Y-linked inheritance.

In the case of the porcupine skin, Dr. Stern searched the parish records of an English family starting in 1710. In this case a boy who had a strange, blackened,

spiny skin had been examined by the Royal Society in 1731. His descendants showed up with the same affliction.

The investigation showed there probably were male descendants not affected, and females who were, contradicting the theory of male inheritance. This and other case histories supporting the theory fell apart under investigation. All apparently are instances of ordinary inheritance mechanisms.

The scientist said the work further weakens the theory that Y chromosomes determine sex in man. Work already had been done with fruit flies in which females had been produced with Y chromosomes and males without Y chromosomes, which is contrary to the sex determination idea.

Scientists still must discover the function of the Y chromosomes, Dr. Stern said.

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PSYCHOLOGY

Business Losing Talent Through Wrong Use

► UNWITTING ATTEMPTS to fit round pegs into square holes may be causing the wastage of considerable executive talent in business and industry.

This is suggested from a study made by two University of California psychologists, Drs. Lyman W. Porter and Edwin E. Ghiselli.

The psychologists report that significantly different kinds of personalities appear to be needed for success in top and middle management. The promotion of a good middle management man to top management may cause him to fail because his personality is unsuited to the new job. Good candidates for top management may never get a chance at top jobs because on the way up they fail in middle management, which calls for a different personality.

Drs. Porter and Ghiselli based their results on a questionnaire filled out by 100 top management and 170 middle management executives from various parts of the country. Essentially, the executives were asked to check off those adjectives which they felt best described their own personalities.

The top management people visualize themselves as being active and self-reliant, self-confident, willing to take risks when conditions warrant, not easily discouraged, and able to take advantage of opportunities.

Middle management personnel see themselves as careful planners who do not make hasty decisions, who are less willing to take risks, who have less self-confidence, who are dependable and stable, and avoid making mistakes on the job and elsewhere.

"It is an interesting fact that top management people see themselves as being just the type of people who can fulfill the functions that are normally assigned to top management, and middle management people see themselves as capable of the tasks usually assigned to middle management," the psychologists said.

More development in personality testing may bring more top management candidates to light and eliminate some of the unfortunate personnel placement, the psychologists indicated.

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BIOLOGY

White Blood Cells Show Sex Difference in Dogs

► "DRUMSTICK"-SHAPED white blood cells provide an accurate way to tell the sex of a dog and may prove valuable as a new biological cell marker for studies of radiation damage, Dr. K. A. Porter of Harvard Medical School, Boston, Mass., reports in the British scientific journal *Nature* (April 13).

In female dogs the cells, known as neutrophil leukocytes, show a characteristic drumstick shape which is not found in the male. About one out of every 22 neutrophils have the distinctive arrangement, he reports.

This same structural difference has been described before in both humans and rabbits.

If bone marrow from a female dog is injected in an irradiated male and the drumstick cells are later found in the male's blood, Dr. Porter says, it will indicate that the donor cells from the female have survived and reproduced.

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