shape, and sometimes also with tiny men and women. If a figure lands right side up facing you in the game, it's yours.

The interesting thing about that, so far as Eskimo history goes, is that prehistoric Eskimos in northern Canada used to play this dice game, and then some of these Eskimos moved back west to Alaska, carrying this idea of amusement with them. Finding the little ivory ducks in old, buried settlements in Canada, but only in more recent settlements in Alaska, has provided one clew to an old, unrecorded migration.

Eskimo craps is a simple game. But they have a name for it. Tingmiujang. With a language like that, maybe Santa is lucky, too, that he doesn't have to read the letters an Eskimo child would write.

Science News Letter, December 17, 1938

DENTISTRY

Pyorrhea Greatest Problem Facing Dentists Today

PYORRHEA and other diseases of the gums constitute the greatest problem facing dentists, Dr. Olin Kirkland, of Montgomery, Ala., told dentists at the Greater New York Dental Meeting.

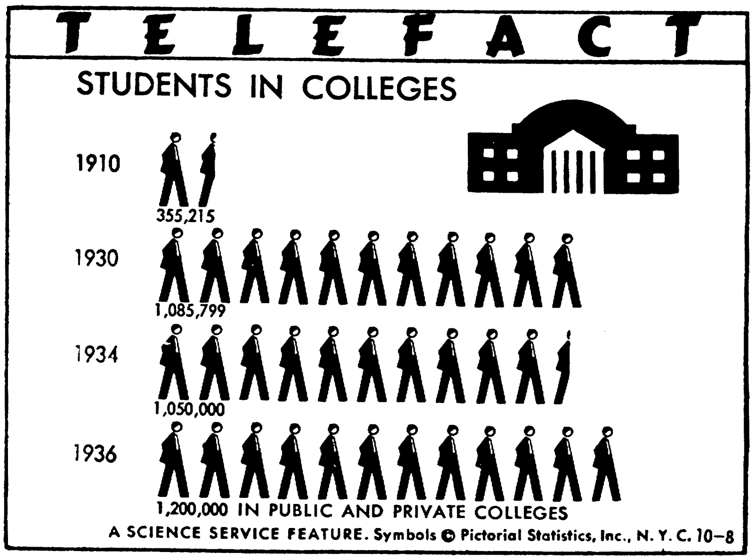
"There is a way to treat pyorrhea successfully," Dr. Kirkland said, "but the operator must make an early diagnosis and proceed to eradicate the infective foci."

Diseases of the gums can be controlled with much less effort than caries or tooth decay and with equal assurance of success, Dr. Kirkland stated, but unfortunately the public does not know this.

More specialists in diseases of the gums are needed, Dr. Kirkland said.

Science News Letter, December 17, 1938

The New York Zoo has a tigon, which is the hybrid offspring of a Siberian tiger and an African lion.



PHYSICS

Introduces New Simplicity Into Atom Mathematics

All the Many Atomic Particles Are Found to Belong To Two Classes According to the Type of Their Spin

THE spin of atomic particles, the same kind of whirling which makes a top stand up on a table-top when properly spun, is now enabling scientists to find a new simplicity in nature.

All the many atomic particles—the electrons, positrons, neutrons, neutrinos, deuterons, mesotrons and all the rest—are now known to fall into one of two simple categories. Either their nuclear spin falls into half integral or into whole integral differences.

In a reply to a query of Science Service, Prof. J. Frenkel, theoretical physicist at the Industrial Institute in Leningrad, points out that all the atomic particles conform to either Fermi-Dirac or Einstein-Bose statistics, special advanced kinds of mathematics developed to interpret their properties.

Electrons, positrons, protons, neutrons and neutrinos conform to Fermi-Dirac statistics, Prof. Frenkel says, and he suggests that they be called "odd" particles.

The second kind of particles have whole integral spins, conform to the Einstein-Bose statistics and include photons, deuterons and mesotrons. These particles would be known as "even" particles, suggests Prof. Frenkel.

In treating the particles by mathematics it turns out that Fermi-Dirac class particles can combine their half integrals of spin and thus turn over into the second kind of Einstein-Bose particles. Thus where two, four, six or any even number of them combine the result is that the Fermi-Dirac particles show properties closely like the Einstein-Bose particles.

Where three, five, seven or any odd number of Fermi-Dirac particles combine they keep their original properties. Einstein-Bose type particles cannot, of course, ever combine into the Fermi-Dirac type because of their whole integral spin values.

Prof. Frenkel is the well-known physicist who also named excitons and phonons as new concepts in mathematical physics. Exciton is a term used to designate a state of excitation moving from one atom to another in a material body, as where light would be absorbed in passing through a material like glass.

The phonon is a fictitious particle bearing the same relation to a sound wave as a photon does to a light wave. The latter is defined as a packet or bundle, of radiant energy whose magnitude is equivalent to Planck's constant "h" times the frequency of the wave