

a steam plant that is relatively idle in summer, a Carrier official states.

This new absorption machine, thoroughly tested during the past few years, will operate on either high or low pressure steam. Aside from a small solution pump it has no moving parts, and is therefore practically noiseless and vibrationless. It is lighter in weight and more compact than other heavy duty refrigerating equipment.

The Carrier machine consists of two shells, a heat exchanger, a solution pump and auxiliaries. Water to be chilled is sprayed into one shell, the absorber-cooler shell or flash evaporator. Since this shell is maintained at a high vacuum, a portion of the chilled water evaporates and cools the rest. The chilled water drains from the cooler tank, and is pumped to the load. The temperature of the chilled water leav-

ing the machine depends on the concentration and temperature of the salt solution sprayed over the coil located in the lower part of the shell, which forms the absorber unit.

The part played by the steam is in the re-concentration of the salt solution due to the absorption of water in the process. The steam, admitted to the tubes carrying the solution, heats it and drives off the water vapor previously absorbed in the absorber section, thus restoring the original concentration.

No claims are made by the corporation that the absorption principle used is new. The claims have to do with the refrigerant-absorbent combination employed, and its safety over such types of plants as use ammonia or other toxic chemicals.

Science News Letter, May 28, 1949

#### BACTERIOLOGY

## Sickness Diagnosis Tool

➤ A NEW tool for diagnosing sickness due to germs, especially the virus kind of germs, was announced by Dr. Irwin S. Neiman of the Chicago Medical School at the meeting in Cincinnati of the Society of American Bacteriologists.

The diagnostic tool would be an anti-antibody. An antibody is a disease-fighting substance formed in the body in response to invasion of disease germs. Antibodies are specific for the antigens of the particular germs that call them up. Antitoxin, the material Dr. Neiman worked with, is the specific antibody for the toxin of the diphtheria germ.

Antitoxin combines with the diphtheria toxin, but will also, he discovered, combine with a powerful anti-antitoxin, or anti-antibody. The anti-antibody is not needed to diagnose diphtheria, but in some diseases, especially some virus diseases, it would help. These are ones in which the virus antigen is not easily available for testing to find whether the patient's blood contains antibodies to it. But an anti-antibody might be prepared and used instead. The reaction showing the presence of the antibody in the patient's blood would show that the germ calling up the antibody was also present, and thus clinch the diagnosis.

Science News Letter, May 28, 1949

#### PHYSICS

## Soviets Claim Meson Find

➤ SIXTEEN kinds of subatomic particles born of cosmic rays high in the upper atmosphere of the earth are claimed as discoveries during the past three years by two Soviet scientists, who make their bid for recognition in a letter, dated last Sept. 23, to the British journal, NATURE (May 14). It was received in London in February.

Western world physicists have recognized solidly two kinds of fleeting particles that they call mesons, with weights 216 and 286 times that of the electron. These are created by cosmic rays from outer space and they have also been created artificially in the largest of the Berkeley, Calif., cyclotrons. They live but a brief fraction of a second.

But the Russian scientists, A. I. Alichanov and A. I. Alichanov by name, report the detection of mesons with the following masses: 110, 140, 200, 250, 300, 350, 450, 550, 680, 850, 1,000, 1,300, 2,500, 3,800, 8,000, and approximately 25,000. They would prefer to call these particles "vary-

tons" to emphasize the diversity of masses of the new particles. They published their first results in Russian in December, 1946, and a month later in English, but they feel that for these and subsequent discoveries western physicists have not given them credit.

Dr. C. F. Powell of the University of Bristol, who is one of the British scientists charged with ignoring the Russian claims, explained that information had reached him by word of mouth in May of last year and that he had referred to the Russian work in papers since then.

Prof. Alichanov was invited to the Bristol symposium on cosmic rays last September, but he could not attend. Dr. Powell blames failure to comment earlier on the Russian work upon "difficulties of communication and intercourse between us which exist at the present time."

Apart from the Russian work, Dr. Powell said, the only evidence for the existence of other types of mesons than the 216 and

286 weights consists of individual photographs, no two of which represent the same process. The existence of many types of mesons, sufficiently stable to be observed, is of great importance in Dr. Powell's opinion. He suggests further experiments to reduce statistical variations of the Russian observations and give a decisive answer as to whether the many kinds of new particles exist.

Scientists expect experiments with mesons to throw much light on the nature of the nucleus of the atom which is involved in the release of atomic energy. For this reason, there is a keen scientific race to obtain the most information possible at the earliest time.

Science News Letter, May 28, 1949

#### PHYSICS

## Predict New Stable Kinds Of Chemical Elements

➤ THREE NEW, stable varieties of chemical elements are predicted by Dr. Henry E. Duckworth, Wesleyan University chemist at Middletown, Conn., and one of them, a very rare sort of platinum, has already been detected, according to a report in PHYSICAL REVIEW (May 1).

Radioactive isotopes, which are unstable varieties of the elements, have been discovered by the dozen in recent years as a result of atom-smashing and atomic energy research. But discovery of permanent elements is rather unusual.

The rare, stable isotopes deduced from the relationships between those known to exist are: tellurium 118, gadolinium 150 and platinum 190. These supposed new ones are all lighter than the most plentiful stable isotopes of these elements.

Platinum 190 was actually discovered by Dr. Duckworth, working with Robert F. Black and Richard F. Woodcock, as a line in a mass spectrum photograph made with a spark between ordinary platinum electrodes. The newly detected sort of platinum is present one part in about 16,000 parts of commercial platinum.

Science News Letter, May 28, 1949

#### WILDLIFE

## Closed Season Decreed on Alaska Mountain Sheep

➤ ALASKA'S white mountain sheep, badly depleted by over-hunting, are given the benefit of a year-round closed season in the newly-announced 1949-50 game regulations for the territory. In a further effort to bring about a comeback of this beautiful and unique big-game animal, the U. S. Fish and Wildlife Service recently undertook a program of wolf- and coyote-control.

Science News Letter, May 28, 1949

Over 7,000,000 persons in America are estimated to be afflicted with *rheumatism and arthritis*.