

portant to the United States than is realized for the southern states have the carrying mosquito and, while no recent cases have been reported, there is always the danger of an outbreak, particularly with modern transportation facilities to aid the spread.

Control in South America, he said, is possible through use of a recent and very effective vaccine, made from attenuated virus, which seems to confer a fairly lasting immunity. Over a million vaccinations have been carried out thus far with very encouraging results. Mosquito-control projects are also used.

Information concerning the African problem is still inadequate and control will be slow, but Dr. Russell said some advance can be made each year.

## Rickettsial Diseases

PROGRESS toward control of the rickettsial diseases, typhus fever and Rocky Mountain spotted fever, was reported to the virus conference at Harvard Medical School by Dr. Hans Zinsser of Harvard.

The most encouraging method, he said, is the use of killed typhus virus for immunization. The use of living virus and a combination of living virus and antiserum for vaccination, he emphasized, are dangerous and should not be attempted until the use of killed material has been fully explored.

The major problem with the use of killed material is that large amounts must be employed but with the recent amazing progress in culture methods, this problem seems well on its way to solution.

While passive immunity, because of its temporary nature, is incomplete as an answer to the control problem, Dr. Zinsser reported, the serum of immunized horses has been proved to have specific protective, prophylactic and therapeutic action against typhus fever in Mexico.

## Would Prohibit Parrots

ABSOLUTE prohibition of the importation of any birds of the parrot family and rigid regulation of domestic stock, with destruction of infected birds, was urged by Dr. John F. Enders of the Harvard Medical School as offering the best hope of safeguarding man against the parrot disease, psittacosis.

Such a program would require strict enforcement of existing laws on bird control, a few new ones, and close cooperation among public health officials, bird dealers and the public, he said, but it would be well repaid by the stamping out of a disease which despite the fact

that it is easily preventable, constitutes a definite public health menace.

The most insidious feature of the disease is that apparently well birds may carry the disease and pass it on to man. The familiar green parrot of Brazil and the Australian parrakeet are the worst offenders in this respect but canaries, finches, sparrows and even young chicks are susceptible to the disease.

The problem of immunizing against the disease is not yet fully understood, Dr. Enders reported. Some success has been had with inoculations to produce mild cases of the disease, however, and the use of immune serum may also be possible after further research.

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## PHYSICS

# Search for Elements Heavier Than Uranium Unsuccessful

THE INTRIGUING picture of scientists being able to create super-heavy chemical elements by the bombardment of uranium with neutral atomic particles, the neutrons, apparently is now proved impossible by elaborate and careful experiments performed by the Italian physicist, Dr. Emilio Segrè, working at the radiation laboratory of the University of California.

Describing his results in *Physical Review*, (June 1) Dr. Segrè concludes that "transuranic elements have not yet been observed."

Such elements more massive than uranium—heavyweight of all chemical elements—were suggested by the 1934 experiments of the Nobel Prize scientist Prof. Enrico Fermi of Rome, who is now at Columbia University. Dr. Segrè was one of the research group which worked with Prof. Fermi in these earlier experiments.

By bombarding uranium with neutrons, Dr. Segrè found that the well-known radioactive isotope of uranium—having a half-life of 23 minutes—was produced. This isotope disintegrated with the emission of an electron, a so-called beta particle. A search for alpha particle emission was unsuccessful.

While he was not able to demonstrate its presence chemically, Dr. Segrè concludes that the beta emission means the isotope breaks down into element 93, which is extremely long-lived. This is in keeping with the present picture of radioactive disintegration, but furnishes only very indirect proof, and makes true Dr. Segrè's conclusion that transuranic elements have not yet been observed.

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