cocktails on an empty stomach. After prolonged inhaling it may cause sleepiness and headache.

Concentrations of the toluene fumes in the gas chamber are varied in different test periods and the men are given a variety of physiological and psychological tests to find out just what effect there is on vision, speed of movement, coordination, as well as breathing, heart rate, circulation, and body chemistry, particularly for traces of toluene in the blood. The effect on white and red blood cells is watched.

Later, concentrations in the test chamber known to produce certain degrees of intoxication or poisoning will be compared with the concentrations actually found in industry.

It is hoped through these human experiments and others now being conducted on animals to discover some simple physical examination to detect toluene poisoning in the earliest stages before it has done permanent damage to the body's organs.

Science News Letter, May 17, 1941

PSYCHOMOTOR TEST

Dr. E. C. Hammond (right), is testing the ability of P. J. Valaer, chemist at the National Institute of Health to perform certain tests after inhaling toluene. The test is to place the pencil alternately in the two holes in the block as rapidly as possible.

CHEMISTRY

Charred Documents Made Readable by Chemical

CHLORAL HYDRATE, ingredient of "knockout drops" with which criminals used to drug their victims, now serves in the revival of documents "knocked out" by fire.

Two research workers in the Metropolitan Police Laboratory of London, W. D. Taylor and Henry J. Walls, give a brief description of their method for treating charred documents to restore their legibility. (*Nature,* April 5).

The blackened pages are covered with a 25% solution of chloral hydrate in alcohol, then dried at 140 degrees Fahrenheit. This is repeated several times, until a mass of chloral hydrate crystals appears on the surface. A final treatment is given with a similar solution to which 10% of glycerin has been added. After drying, the document is ready to be photographed.

The method works equally well with printed and typewritten matter, the two scientists state, and reading matter on both sides of the page is restored.

No chemical or physical explanation has yet been found for the process, but investigations on its basis are going forward, with the hope of further improvements. It has been found especially valuable in the restoration of the many documents charred in fires following Nazi incendiary raids.

Science News Letter, May 17, 1941

PSYCHIATRY

Mental Disease May Be Banished by Frozen Sleep

Four Out of Ten Patients Improved, With One Death; Method Considered Promising Enough for Further Tests

DISPELLING the fog of unreality which clouds the minds of patients sick with schizophrenia, widespread and generally hopeless mental illness, may be possible by means of frozen sleep, the refrigeration treatment originally devised for cancer patients.

Use of this treatment with great improvement in four out of ten schizophrenia patients and significant but transitory improvement in three more was demonstrated by Dr. John H. Talbott and Dr. Kenneth J. Tillotson, of Boston, in an exhibit at the meeting of the American Psychiatric Association.

Altogether 14 patients, most of whom had been confined to a mental hospital for two or more years and had been given other forms of treatment including insulin and metrazol shock, were given the frozen sleep treatment. They were first given a light anesthetic and then placed between cold blankets through which a refrigerant at a temperature of 32 degrees Fahrenheit or lower circulated.

Internal body temperatures as low as 75 degrees Fahrenheit were achieved in the patients. Normal body temperature is 98.6 degrees Fahrenheit. The low temperature was maintained for from 24 to 72 hours. During most of the time internal body temperatures were maintained between 80 and 90 degrees Fahrenheit, which has been found to be a safe working range for continuous hypothermia. Hypothermia, meaning abnormally low temperature, is the name Dr. Talbott gives to the treatment, in preference to such popular names as frozen sleep, refrigeration or hibernation treatment.

Although one death occurred in the group of patients and in some improvement was only transitory, Drs. Talbott and Tillotson concluded that the results of the treatment were sufficiently good to justify its further use in schizophrenia. Their results show, they believe, that during the first years of schizophrenia irreparable damage to the important central nervous system does not occur and if