

MEDICINE

Blood Safety Questioned

Cases of jaundice, believed traceable to virus in blood plasma, are reported, but health and medical authorities are satisfied irradiation is effective when properly done.

► THE SAFETY of human blood plasma that has been treated with ultraviolet light to destroy possible jaundice virus in it is questioned by three groups of doctors reporting in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (Sept. 16).

Eighteen cases of this kind of jaundice, known medically as homologous *serum hepatitis*, are reported. In all cases, the doctors reporting believe the sickness was due to virus in the plasma given the patients for other illnesses.

But, says an editorial in the same issue of the *A. M. A. Journal*, "physicians should not withhold blood or plasma from any patient because of these adverse reports; however their indiscriminate use should be discouraged."

Discovery that the virus of this hepatitis could be inactivated in blood serum by ultraviolet irradiation and that the plasma was not otherwise affected led to adoption of ultraviolet irradiation as the official method of sterilizing plasma. During the two years since then, the *Journal* editorial points out, only a few sporadic cases of hepatitis have been reported following extensive use of irradiated plasma.

Officials at the National Institute of Health in Washington state they are satisfied that irradiation, properly done, is effective for sterilizing plasma and that they will continue to require it for all blood products for the armed forces and civilian use.

Hepatitis, meaning inflammation of the liver, may come from various causes. In this particular condition it is caused by a virus. The yellowing of skin and whites of the eyes known as jaundice is a symptom of this and of other liver diseases.

Not all persons have this virus in their blood. There is no laboratory test for the virus in blood, and no laboratory animal is susceptible to it. Scientists at the U. S. National Institute of Health have even tried silkworms in the hope of finding a laboratory animal that could be used to test human blood for this virus. The silkworms, however, did not prove susceptible to the virus.

Processors of plasma, the *A. M. A. Journal* advises, should screen blood donors carefully, eliminating those with a history of suspicious illness or contact with hepatitis. Equipment for irradiating the plasma should be continuously checked for efficiency. Needles and equipment used for collecting blood must be sterilized by autoclaving or boiling. Users of plasma, in hospitals or private practice, should be

equally careful about the sterility of all materials used to puncture the skin or to collect blood. Needles used in giving the plasma might be a source of the virus if not sterilized.

A more direct test for the virus-killing effect of ultraviolet irradiation should be sought, the medical journal also points out. At present a sample of plasma that has been irradiated is seeded with a test bacillus and again irradiated. If the test organism has been destroyed, this is considered proof of the efficiency of the irradiation sterilization.

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EDUCATION

Hollywood Tricks Do Not Aid Film Learning

► HOLLYWOOD tricks to capture attention in instruction films do not help learning. They may interfere with it.

Two groups of 1,055 naval trainees and 1,576 army recruits saw one of five versions of a training film on use of machine-shop measuring tools or they saw no film at all. All were later given an information test on the film's content.

Results of the test were reported in State College, Pa., to the American Psychological Association by Dr. D. Morgan Neu of Pennsylvania State College.

The group that saw no film at all got lower scores than those who saw the film. The version with no attention-getting devices was as effective if not more so than the jazzed up versions. The versions containing irrelevant visual material or irrelevant sound may have interfered with learning.

Devices like ultra close-ups, spot-lighting, and pointing do not necessarily help learning, it was found.

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ENGINEERING

Grinding Tough Materials Easy with Liquid Nitrogen

► THE TOUGHEST materials can be ground to a powder by a process which utilizes liquid nitrogen developed by the Linde Air Products Company of New York.

The function of the liquid nitrogen, which is used in spray form, is to cool the material to be pulverized to a point of maximum fragility. The new process can be used to pulverize rapidly mechanically-

tough or heat-sensitive materials such as plastics, pharmaceuticals, insecticides, food stuffs, substances containing vitamins and other organic materials.

In operation, liquid nitrogen is injected into a chamber between the feed hopper and a high-speed stainless steel pulverizing mill. The fine liquid nitrogen spray plays on the material passing through, cooling it to a low temperature.

It has not been found necessary as yet to cool materials to the temperature of liquid nitrogen, approximately 320 degrees below zero Fahrenheit. One great advantage in using liquid nitrogen instead of some other liquefied gas is that nitrogen is an inert element and does not react chemically with materials being ground.

At the present time, liquid nitrogen grinding is limited to high-cost materials that are able to absorb the added grinding cost. An important use will be in grinding materials that might be changed in one way or another by the heat generated by high-speed grinding.

Materials with low melting points, as an example, normally overheat and prevent continuous grinding, or sometimes the grinding results in torn rather than sharply defined particles. The inert nitrogen atmosphere will be of aid in grinding explosives and oxidizable materials. A low temperature mill will prevent loss of aromatics and volatiles.

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GENERAL SCIENCE

Corporation Reports Understood by 1 out of 4

► THE ANNUAL reports of billion dollar corporations cannot be understood by 75 out of 100 American adults.

This was the report of Drs. Siroon Pashalian and William J. E. Crissy, of New York University and Queens College in New York, based on a study of the readability of samples taken from 26 such reports.

On the whole, they found, the general level of reading is difficult. The human interest value is "dull."

One difficulty was in the use of large numbers of figures. When from 10 to 20 figures appear in a single 100-word sample of text, the author should take warning and think about putting them in a table or chart, the investigators suggest.

Corporation reports should pay more attention to individual personalities, the investigators urge.

"People are interested in people," they conclude. "They want to become better acquainted with the outstanding personalities of the corporation. Yet, among the 21,100 words sampled in this study only 20 names were mentioned."

Personalities were largely confined to obituaries.

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