is shown in a report of A. C. Aston of Washington, D. C., to the Society of Automotive Engineers.

Draining oil does not remove coarse material in the crankcase, Mr. Aston believes. Draining removes oil which has been used so long in the engine that it has found its proper balance and become perfectly stabilized. It is discolored, that is true, but the discoloration is not in the slightest harmful, according to Mr. Aston, because it is merely the result of smoke which has found its way past the pistons. An engine operates worse on new oil. For oil, it is said, gains efficiency with practise, and after a few thousand miles the flash and fire points and viscosity become stabilized to suit the engine.

Used oil is better during temperature changes, the report states. It has the proper consistency, and in winter when the engine is hard to start, it circulates more easily and causes less strain than new oil.

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MEDICINE

Tonsils, Once Held Useless, May Prevent Diphtheria

TONSILS, long considered to be useless vestiges of an earlier evolutionary stage, may possibly have some present use after all.

Studies indicating that they may secrete something that neutralizes diphtheria toxin were reported recently, by Dr. Istvan Bezi of the Royal Hungarian University of Budapest, who spoke before the American Association of Immunologists at Cleveland. The studies are as yet only in a preliminary stage, and Dr. Bezi warned against expecting immediate application of his discovery in the treatment of diphtheria.

It has never been clearly known exactly what becomes of the toxin of diphtheria as it is formed in the throat of an infected individual. Dr. Bezi suspected that the toxin might be neutralized by the tonsil fluids or by the ordinary saliva of the mouth.

His investigations proved that the saliva may affect the diphtheria bacillus itself but will not diminish the potency of the toxin secreted by the organism. The extracts prepared from the tonsil, however, are capable of destroying or neutralizing the toxin.

Other studies of diphtheria toxin were reported by Dr. Augustus Wadsworth, director of laboratories at the New York state health department, and Ella N. Hoppe. They have found that exceedingly minute amounts of diphtheria toxin may be destroyed or neutralized in some unknown manner by tissues in culture outside of the body. These tissues will neutralize the toxin only when they are alive and not when they are dead.

As tetanus or lock-jaw toxin, which has a special selective action on nerve tissue, is found to be neutralized when mixed with a suspension of brain tissues, so diphtheria toxin, which has a special action on heart tissue, might also be supposed to be neutralized by mixing it with heart tissue; but this was not found to be the case. Diphtheria toxin mixed with ground-up heart muscle from the guinea pig retained its potency unchanged.

It was also reported that extracts of the leucocytes, white blood cells, from human blood had no power to diminish the strength of diphtheria toxin.

In general, Dr. Bezi showed that the lymph glands and tonsils possess the property of absorbing and neutralizing diphtheria toxin and in this capacity constitute our defense mechanism against this most deadly substance.

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PHYSICS

X-Rays are Most Destructive To Young, Growing Cells

X-RAYS in sufficient doses are destructive to all kinds of living cells, but they are most destructive to cells that are physiologically young and active.

This is one of the basic physiological facts that underlie radiotherapy, Dr. Arthur U. Desjardins of the Mayo Clinic told a meeting of the American Association for the Advancement of Science in Pasadena. It follows from this principle that tissues that remain "chronically young" respond to X-ray dosages much smaller than those needed for effect on maturer tissues.

The most sensitive of all the cells in the human body are certain classes of white blood corpuscles, and the glands and other tissue masses where these are found most thickly are also very sensitive to the destructive rays. Dr. Desjardins inclines to the opinion that the easy destructibility of these white blood cells is at the bottom of the value of X-ray therapy in certain inflammatory conditions. White blood corpuscles crowd around foci of infection, causing inflammation. The X-rays break them down, releasing the germ-destroying substances they have formed within themselves, and thereby hastening the death of the trouble-causing bacteria.

Certain kinds of tumors and cancers can be treated with X-rays because the cells constituting them are physiologically younger than the surrounding tissues. The diseased growths are therefore destroyed by doses of X-rays that do no appreciable harm to the healthy tissues.

The most sensitive of normal body tissues are the mucous surfaces lining the digestive and certain other cavities. Muscle, bone and nerve tissues are among the most resistant.

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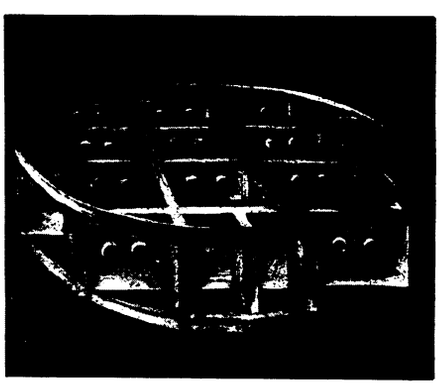
ZOOLOGY

Bumper Crop of Bear Cubs Reported in Yosemite Park

A "BUMPER CROP" of bear cubs is reported in Yosemite National Park this year. This is a great contrast to last spring, when hardly a cub was seen in Yosemite Valley.

The special bear patrol is still functioning, and any bears which damage cars or tents, or are in any way a nuisance, are caught, daubed with white paint for identification purposes, and removed to the lower end of the Valley.

Science News Letter, June 27, 1931



MIRROR OF THE FUTURE

A model of the mirror that Prof. Ritchey has designed for telescopes of the future. It is built up of a number of glass plates carefully cemented together.