

With the report is to go a microscopic slide with a section cut from the tumor tissue whenever this examination, called a biopsy, has been made. Full details of all treatment given the patient, and of post mortem examinations are also to be sent in. To cover the costs of the extra

slide and filling in the report, for which the State Department of Health distributes special forms, fifty cents will be paid for each complete report plus microscopic slide. Names of patients will of course be kept absolutely confidential.

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CHEMISTRY

## Germany's Planes Using Oils Made By Exclusive Method

### "Voltolized" Oils Made by Treatment With New Electrical-Discharge Process Go Into Blend

**S**WEEPING squadrons of German fighting and bombing planes now wheeling in Europe's skies are being lubricated by oils which are made by methods commercially unavailable in the United States, it was disclosed at the meeting in Chicago of the American Oil Chemists' Society in the report of Dr. B. H. Lincoln of the Continental Oil Company.

The German oils are made by treating mineral, vegetable and animal oils with an electrical-discharge process and thus increasing their viscosity greatly. These "voltolized" oils, as they are known, are then blended with ordinary mineral oils to produce a superior airplane lubricant which has many of the valuable properties of castor oil, used during the World War, but without castor oil's handicap of stickiness.

The airplane lubricants are an outgrowth of Germany's World War con-

quest of Belgium, for the German occupation of that country gave them control of the then-young Elektrion Company which was just beginning to produce lubricants by subjecting oils to an electric discharge.

Through an agreement with Netherlands interests the process was made available to Royal Dutch Shell, worldwide Dutch petroleum corporation. Following the war, Royal Dutch Shell did extensive research on the method and perfected it until today the great KLM Dutch airliners, flying to Batavia and the East Indies, use such electrically-treated oils for lubrication. After the war the Elektrion Company in Belgium again picked up production there by this method.

The action of the electrical discharge appears to produce polymerization of the molecules of the oil (make larger molecules out of little ones) and does it with-

out changing the essential properties which make for good lubrication, i.e. slipperiness and strength of film.

Little realized, Dr. Lincoln said in his report with G. D. Byrkit and E. W. Nelson, is the large extent to which the American petroleum industry utilizes fats and fatty acids, obtained primarily from agriculture, in producing better lubricants. Some \$22,204,900 worth of fatty products are used by the petroleum industry yearly, he said.

Better oiliness, greater strength of lubricating film and less corrosion to engine parts result from the blending of small amounts of compounds of these fats from the farm into oils and greases.

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FORESTRY

## "Blitzkrieg" Plan Adopted By U. S. Forest Service

**"B**LITZKRIEG" methods have been adopted by U. S. Forest Service fire-fighters, materially speeding up the tempo and effectiveness of attack against the flaming enemy. The new technique is known in the Service as the "one-lick" method.

Formerly, each man on a fire-fighting line was armed with ax, rake and shovel. He was entirely responsible for his particular sector of the front, and was expected to chop down saplings, rake away debris, and scoop the ground so bare that the fire would find nothing on which to feed as it moved along.

In the "one-lick" method, the fire-fighter, like the modern infantryman, has been made a specialist, a one-weapon man. He is either an axman, a rakeman or a shovelman, just as the doughboy may be a rifleman, grenadier, machine-gunner, etc.

His job is to move forward rapidly, taking one lick at anything combustible he sees but not stopping to clean it up completely. The next man behind him will take another lick, and so on. Only when the leading axman finds himself too far out in front does he stop to take more licks, until the line catches up.

These counter-attacking shock troops move forward in furious action for 40 or 50 minutes at a time, then pause for breath until the end of the hour. The combat is very exhausting, and after three or four hours of it the front-line men are relieved by supports from the rear, while they fall back and perform less arduous duties, such as patrolling the line.

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