

## CHEMISTRY

**Blotting Paper Tells Water in Pure Alcohol**

➤ SIMPLY BY putting some alcohol on a specially treated strip of blotting paper, small quantities of water in alcohol can be detected.

This new and delicate chromatograph test, developed by Dr. J. E. C. Stringer of Vickers-Armstrong at Newcastle-upon-Tyne, England and reported to the journal *NATURE* (June 30), is expected to determine from a tenth to a half percent of water in alcohol used for chemical purposes.

The alcohol being tested is allowed to soak up through a strip of paper, with two chemicals impregnated in it. First it reaches a zone of iron sulfate, which is dissolved in the water and not in the alcohol. When this salt picked up by the water reaches the area containing potassium ferricyanide, a blue coloration consisting of ferric ferrocyanide is produced. The extent and intensity of the coloration depends upon the amount of water present.

Unlike beverage alcohol, that used for chemical work should contain little water and it is often desired to know just how much.

Science News Letter, July 14, 1951

## STILL A FEW LEFT

**BLACKLIGHT LAMP**

Special Argon filled bulb provides a good source of violet and ultraviolet light for blackout experiments and fluorescent materials. Very convenient as it screws into any standard lamp socket.

Clearance Price 45c  
10 for \$4.00

**FLUORESCENT PHOSPHORS**

These powders glow brightly when excited by ultra-violet light. Mix with any clear lacquer for painting purposes. Available in the following colors: red, white, blue, green, yellow and orange.

Sample bottle of any above color 35c  
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Sample Kit—contains 6 colors \$1.75

**NIGHT VISION GOGGLES**

These goggles were used by the Army for nighttime vision purposes. All are new and in individual cloth case. Price \$1.00 each  
3 for \$2.00

Available to the Public for the First Time

**INFRA RED FLUORESCENT PIGMENTS**

These pigments glow when exposed to infra red heat rays. Also useful as temperature indicators. Contains Rare Earth Activators. Price \$4 per ounce

**VAN de GRAAF MACHINE**

GENERATES from 10,000 to 100,000 volts. Sparks leap over one inch in length. 110 AC Volt Operation. Special Price \$14.95

8 pages Illustrated Catalog and Infrared Technical Data 10c. Free with purchase of any above item.

**PRECISE COMPANY**

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Humming-Bird

➤ LIKE A big bee in feathers, the humming-bird darts about the garden, suspended in mid-air on its invisibly vibrating wings while it probes deep-throated flowers for food. It is always a mental effort to regard this dynamic molecule of life as a bird, it is so small and flies so much more in the manner of an insect.

Other small birds can hover for short moments, but the fluttering of their wings is relatively slow and one can see them as they beat. No other bird has so perfected the art of hovering flight as the humming-bird.

In the eastern United States, there is only one species of humming-bird, the ruby-

throat. This one, however, ranges everywhere east of the Rockies, well up into Canada, where you would hardly expect to find tropical visitors. For the humming-birds in general are of the tropics, and ours is a commuter who comes north to rear a family and then returns to a warm climate for the winter.

Ruby-throated humming-birds winter all the way from Florida and Texas south to the Isthmus, and appear sporadically in Cuba; in spite of their diminutive size they are quite evidently efficient travelers.

The humming-bird does not spend all day at that dizzying occupation of flying at the rate of a mile a minute without moving from the spot. That kind of flying requires the burning up of too much energy to be kept up indefinitely. He does it in short spurts, resting between whiles on a slender twig or perhaps a trellis wire, preening his feathers.

Nor does the humming-bird feed, insect-wise on honey, as is often imagined. He likes meat as well as anybody, only he is willing to take it in little bits—as tiny insects in the bottoms of the flowers. That is really what his long, probing beak is after most of the time.

The best way to secure regular visits from humming-birds is to plant a trumpet-creep vine somewhere about the premises. The deep-throated, flame-colored flowers of this tropical plant are the favorite food-counters of these hovering, humming, darting small bits of feathery energy. But they can be lured by other deep or long-spurred flowers that common bees have trouble getting into, for example, the common annual larkspur.

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## PHYSICS

**Lightning's Thunder Stolen**

➤ NEW YORK'S Empire State Building not only initiates lightning strokes but sometimes even steals lightning's thunder.

Dr. Karl B. McEachron, General Electric Co. scientist, told the American Physical Society meeting at Schenectady, N. Y., that the extreme height of the world's tallest building sometimes squelches the thunder that normally accompanies all lightning strokes.

A 15-year study shows that the building's altitude sometimes enables it to initiate its own silent lightning strokes, counteracting thunder-producing lightning charges building up in the clouds above.

About 80% of the lightning strikes on the Empire State Building, which have reached as high as 48 in a single summer, are initiated from the top of the building itself. Bolts emanating from the building occasionally have no thunder-producing current peaks and hence no frightening thunderclaps accompany the colorful lightning flashes.

When lightning strikes normal terrain, the stroke is built up in the clouds and attracted toward the earth where an opposite charge has been built up. In these normal cases, the lightning stroke is always initiated in the sky and is always accompanied by thunder.

In the case of the Empire State Building, the earth's charges become concentrated in a single spot, the peak of the building, and shoot off toward the opposite charges in the clouds in a series of steps, about 150 feet in length each 30 millionths of a second, beating lightning of the clouds to the punch.

Regarding the effect that the recently-erected 222-foot television antenna might have on the building, Dr. McEachron said that while lightning strikes might be increased slightly, the addition of only 200-odd feet to the 1,250 foot-high building could not be expected to have any appreciable effect.

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