



**BIG**—This resistance welder at RCA Laboratories is one of the largest in the country. It will weld aluminum and has an electronic power supply, which in appearance resembles a radio transmitter.

The dedication ceremonies were held on Sunday (Sept. 27) in order not to interrupt the daily work of both visitors and the laboratories.

*Science News Letter, October 10, 1942*

#### PHYSICS

### Bump Gives Automobile Seven Kinds of Motion

➤ AN AUTOMOBILE traveling over a bumpy road is subject to seven different kinds of motion in addition to the smooth straightforward one we would all prefer. These are the bounce, pitch and roll, and four kinds of vibration from the wheels. Each has a different frequency. All seven are excited by the passage of one wheel over one bump. Multiply the number of bumps by the number of wheels and you may want to stay at home.

All this was found out by Pierre Ernest Mercier of Electro-Mechanical Research, Inc., of Houston, Texas, after an extensive study of the subject which he reported in the *Journal of Applied Physics*. As a result he finds that independent springing of each wheel is better than springing only the axles. But he has also devised and tested a number of "suspensions" which are superior to any now in use. Perhaps, after the war, our automobiles will roll more smoothly than ever.

*Science News Letter, October 10, 1942*

#### ASTRONOMY

## Comet Is Not New One

"Discovery" announced by Finnish astronomer turns out to be the famous Schwassmann-Wachmann Comet No. 1, constantly observed for last 15 years.

➤ A NEW comet announced by L. Oterma at the Observatory of the University of Turku, Finland, reported to Harvard Observatory through Lundmark, Sweden, is declared by Harvard astronomers to be none other than the famous Schwassmann-Wachmann Comet No. 1 which has been under constant observation by American astronomers for the past 15 years.

This is not the first time that this comet has been mistaken for a new one. On August 29, 1941, Dr. G. Neujmin of the Simeis Observatory in the Crimea observed it and announced a new comet. But only a few weeks before Prof. G. Van Biesbroeck had observed it at the Yerkes Observatory. This time again it was observed only shortly before being mistaken for new, namely, on Sept. 6 at the McDonald Observatory. Dr. Van Biesbroeck has recently calculated its positions for the last four months of this year.

This comet is one of the most remark-

able known. Its orbit is nearly circular, lying wholly between the orbits of Jupiter and Saturn about 500,000,000 miles from the sun—five times the distance of the earth from the sun. From time to time, the comet, for some unknown reason, increases in brightness, although never becoming visible to the unaided eye. It was during one of these flare-ups that it was discovered in 1927 by the two German astronomers whose name it bears. And it was at a flare-up on each occasion that it was mistaken for new.

Because of its nearly circular orbit, the comet is seldom beyond reach of our powerful telescopes and our photographic plates. It descends at times to the 18th magnitude, at other times brightens, as at present, to the 12th magnitude, 250 times as bright. It shows at present a sharp nucleus surrounded by a nebulous envelope. At other times it appears like a faint star.

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#### ASTRONOMY

## Only Skin Deep

Bursting forth of a new star is not a deep-seated cataclysm, but a surface explosion. Afterwards the star returns to its retiring normal life.

➤ A TEMPORARY star or nova which suddenly flares up in the heavens without warning and then gradually fades, is not quite the cataclysmal event that some theoretical physicists have supposed. This view was expressed by Dr. Dean B. McLaughlin, professor of astronomy at the University of Michigan and secretary of the American Astronomical Society, speaking before the Rittenhouse Astronomical Society at the Franklin Institute.

The outburst is a surface explosion, Dr. McLaughlin believes, of tremendous proportions to be sure, involving as it does the entire surface, but not necessarily fatal. After "blowing off steam," the star returns to approximately its former state. Its temporary excursion into notoriety produces little change in its nor-

mally humdrum life in the heavens.

Dr. McLaughlin's view is based on a personal examination of all spectra of "novae," or new stars gathered at the University of Michigan Observatory and at the other leading observatories of the United States. It is a good idea, he said, for "one set of eyes, with one set of prejudices" to examine all the observational material.

New stars at maximum light, he explained, are about 50,000 times as bright as the sun, though they are so far distant that they appear like ordinary stars. Before outburst they are about the same real brightness as the sun but are smaller, denser and hotter—a type known as sub-dwarfs.

Increase of light from minimum to maximum takes only a few days, but