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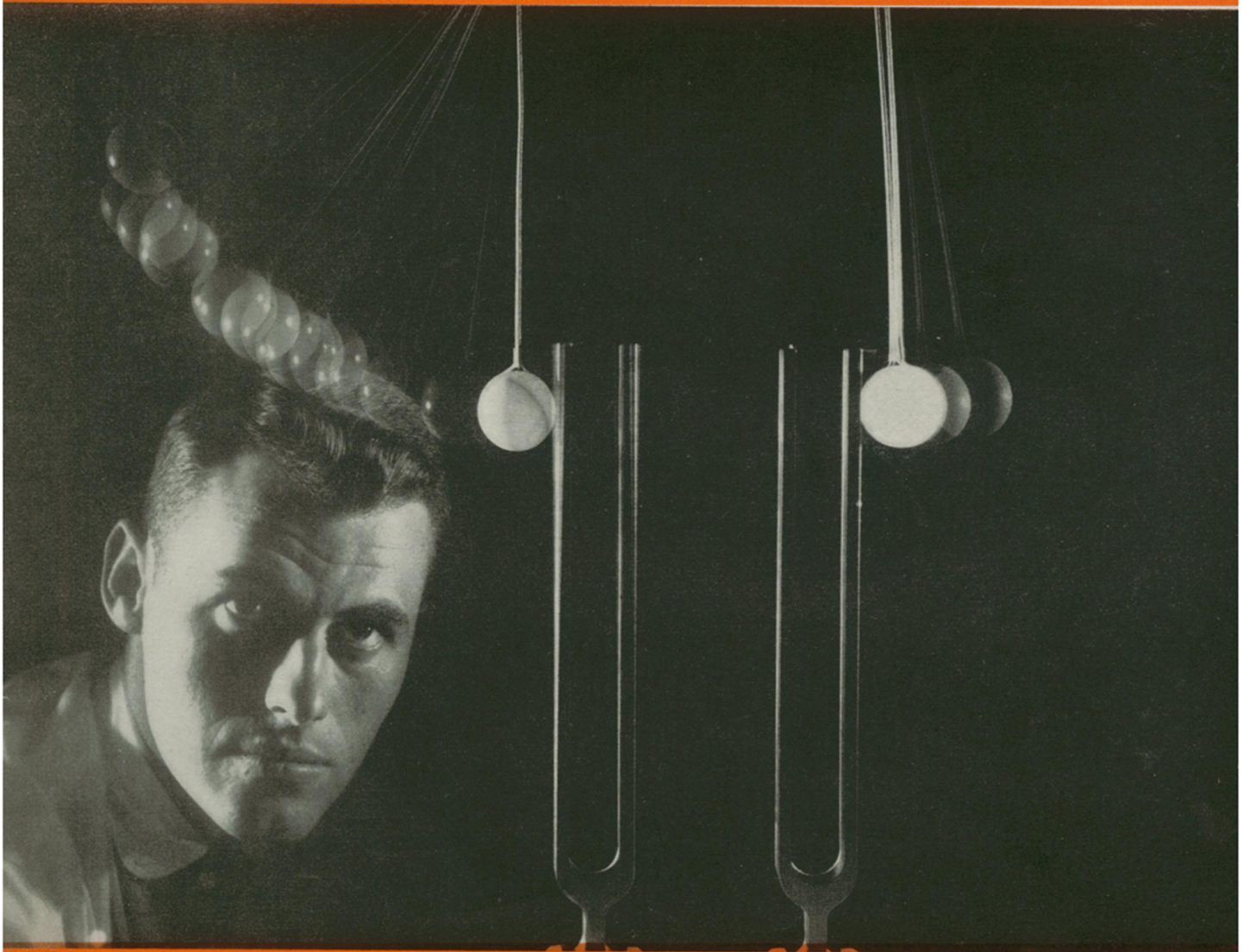
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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Predesigned

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A SCIENCE SERVICE PUBLICATION

Transistorized telephone summons you with a musical tone



Above: Experimental model resembles regular "500" set; the only visible departure is a louver in the base through which the musical tone is radiated.

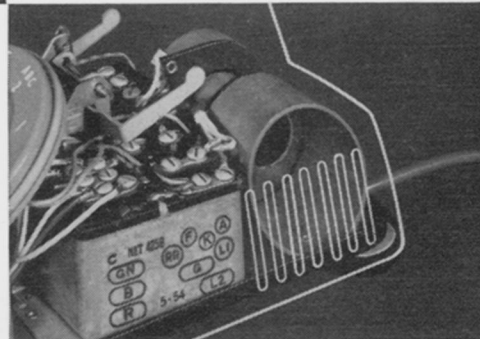
Bell scientists have developed a new musical tone device which may some day replace the telephone bell, if it meets technical standards and customers' approvals.

Because the musical tone equipment uses transistors, the tones will be transmitted with the same amount of power required to transmit a telephone conversation—considerably less than is needed to make a telephone bell ring.

The experimental telephone sets resemble the current "500" sets; the only external difference is a louver at the side of the base through which the tone is radiated by a small loudspeaker mounted inside the telephone's base.

Tests have shown that the musical tone can be heard at great distances. It stands out above general room noise and can be distinguished from sounds like ringing of doorbells or alarm clocks.

This new low-power signaling technique is expected to play an important part in the electronic switching system now under development at Bell Telephone Laboratories.



Above: Bell ringer has been displaced by a small loudspeaker in transistorized telephone. Left: L. A. Meacham heads the team of engineers that developed the musical tone ringer. Mr. Meacham holds a B.S. in Electrical Engineering from the University of Washington, Class of '29. He became affiliated with Bell Labs a year after his graduation. In 1939 Mr. Meacham won the "Outstanding Young Electrical Engineer" award of Eta Kappa Nu.



BELL TELEPHONE LABORATORIES

World center of communications research and development

Kodak reports to laboratories on:

how to make alignment decisions that don't take so much out of a man . . . acrylic fiber and spectroscopic plates

No knots

Take the Great Pyramid of Cheops at Gizeh. Take the Eiffel Tower. Take the *Nautilus*. Take one of those gigantic atom smashers. Take even a little thing like a million dollar turbine in a power generating station or a 70-foot planer bed. Always there comes a moment when the engineer-in-charge has to say, "OK, boys. She'll never be lined up any better than she is right now. Let's get on with the job." And the irrevocable next step is taken. Making a decision like that can take a lot out of a man.

Any gadget that puts such a decision on firmer ground ought to be worth quite a bit in peace of mind alone, to say nothing of the time cards of all those men standing around waiting, waiting for the word.

Right here we could make a big mistake by overplaying our hand. Let's better make plain where the new *Kodak Axicon* stands in relation to the art of aligning long axes.

The word "axicon" was coined by one of our chaps to designate



No, it's not a lens. It's not curved in a plane containing the axis of symmetry.

this simple new class of axially symmetric optical elements, which, with the study of optics a couple of millenia old, he was lucky and smart enough to invent. An axicon images a point source of light along the axis as a straight line in space. No wire, however tight, can be so perfectly free of kink and sag. What of a telescope, you say?

A telescope objective forms its image at a different little knot in space for each successive target along the line of sight. In following these images with the cross hairs, there is a chance for error of parallelism between the focusing motion and the axis. There is also doubt about how much of the observed displacement is real and how much of it is parallax because of inability to locate the knots exactly. With an axicon there is no focusing. Anywhere along a length of 40 feet—100 feet or more, if you like—the line of light is equally thin, forms an equally hard little point of light where intercepted.

A procedure for aligning lower turbine shells with a Kodak Axicon Aligner has been worked out in full detail and even timed. The friends with whom we worked out this procedure certainly know the turbine trade as well as anybody alive. That they, with all their experience, like the axicon method encourages us to believe that the booklet prepared for their operating personnel might make interesting reading for others faced with awesome alignment problems. For a copy, write Eastman Kodak Company, Military and Special Products Sales, Rochester 4, N. Y.

Soft hand and dim light

We announce:

1) *Verel*, an acrylic fiber of soft, kind hand, excellent stretch, controllable shrinkage, high abrasion resistance, good fire resistance, chemical resistance not only to bleaches and all dry cleaning solvents but even to aqua regia and sodium hydroxide.

2) Delivery to Dr. Milton L. Humason of three dozen supremely sensitive *Kodak Spectroscopic Plates, Type 103a-F*, to use on the world's greatest telescope on Palomar Mountain in the climax to a lifetime's work of extending man's observable universe.

We expect to sell quite a few million pounds of *Verel* staple at \$1.10 a pound (the delivered price east of

the Mississippi River). On Dr. Humason's order we should gross perhaps as much as \$27. It is hard to say which is more important, and that is no joke.

Remember that there is today no basic shortage of any type of fiber, natural or man-made, but a considerable shortage of objective information from which to spin theories about where the world came from and where it is going. Before Dr. Humason retires a few months from now, he expects to photograph spectra of the farthest galaxies within the grasp of the largest optical telescope that may ever be built. That "103a" emulsion is not as fast for ordinary or for high speed photography as the far better known *Kodak Tri-X Film*; its forte is the ability to respond in as little as 50 hours of exposure to the feeble trickle of billion-year-old photons.

Remember also one reason why gifted men can be allowed to draw good pay for time spent increasing the speed of Dr. Humason's plates. It is that many people who don't know a galaxy from a galvanometer (and couldn't care less) demand, when a fabric comes along that feels a little nicer because of proper moisture retention, wears a little better, holds shape and color a little better, that they have it on their backs pronto.

Pilot plant quantities of Verel staple fiber are available for evaluation from Eastman Chemical Products, Inc., Kingsport, Tenn. (Subsidiary of Eastman Kodak Company). Plates that respond to light too dim for any eye are available from Kodak dealers after correspondence with Eastman Kodak Company, Professional Sensitized Goods Division, Rochester 4, N. Y.

Price quoted is subject to change without notice.

This is one of a series of reports on the many products and services with which the Eastman Kodak Company and its divisions are . . . serving laboratories everywhere

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