THE LITERARY DIGEST
JANUARY 16, 1937

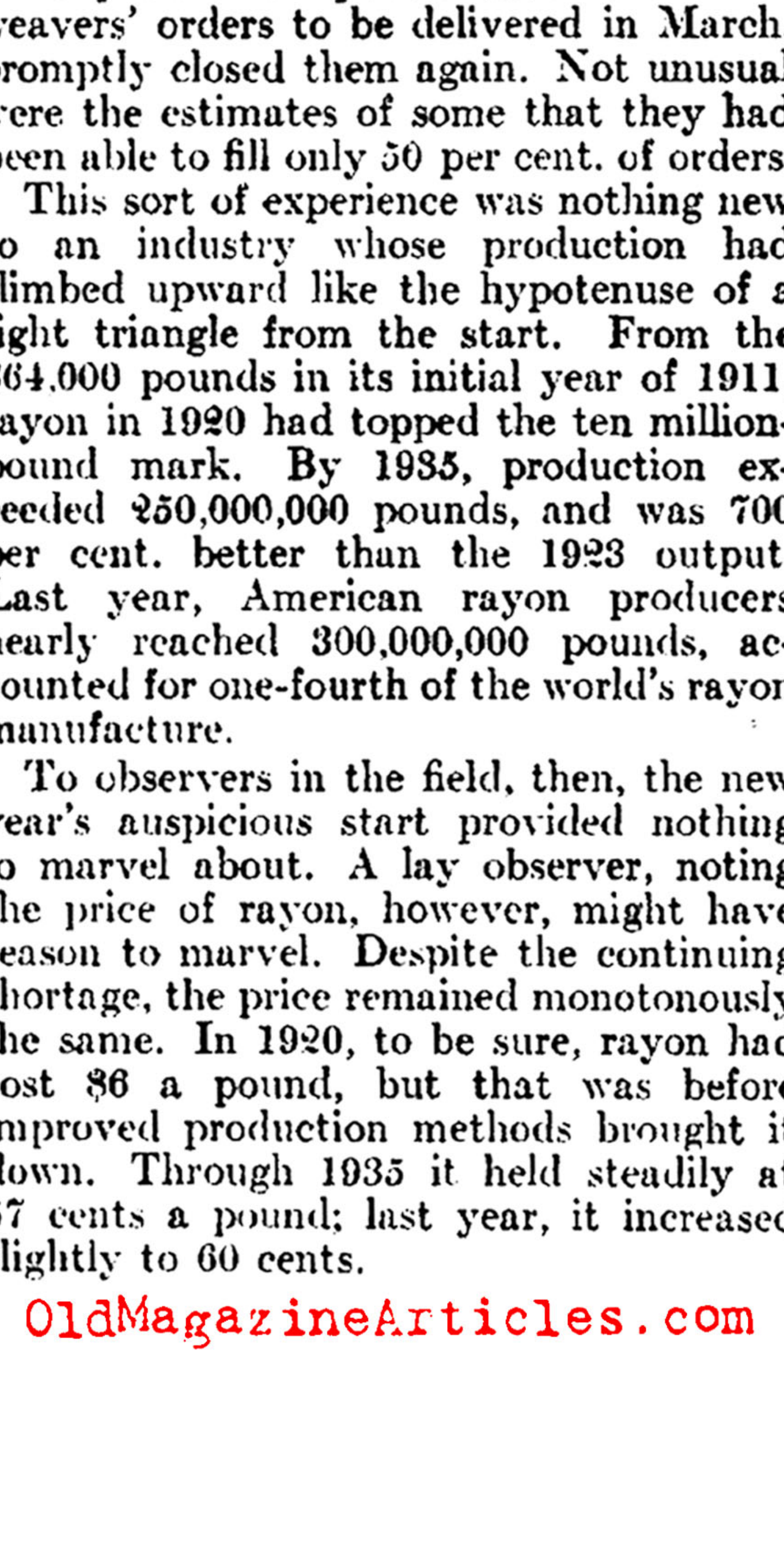
LUXURY: RAYON TO CLOTHE MILADY

Lingerie from Machines; Competition Makes Silk Cheaper

Woman may now clothe herself with rayon from head to foot; which is to say, from panties to coat, from hat to shoes. Also she can rest in a rayon taffeta-upholstered easy-chair, can decorate her home with rayon wall-paper and rayon drapes.

If she is moderately well informed, the woman consumer already knows that rayon goes into a thousand and one products, into air-plane wings and gas masks and linings for coffins. If she is exceptionally well informed, she knows that next month will see rayon go into still more products, and the month after into still more.

Knowing this, she might well suspect that the rayon industry has been hard put to keep pace with the demand its researchers and promotion men inspire. In this she would be wholly right. The robust young industrial giant has not only been puffing along at capacity for months, but has not been able to meet weavers' needs. And the growing industrial youngster will continue to fall behind demand until sometime in 1938, when most producers will have expanded their plants to push present production of man-made fiber forward an estimated 25 per cent.



Cotton-linters are dumped into mixer with chemicals to form cellulose solution

Over-Ordered—Last week, sixteen rayon yarn producers opened their books for weavers' orders to be delivered in March, promptly closed them again. Not unusual were the estimates of some that they had been able to fill only 50 per cent. of orders.

This sort of experience was nothing new to an industry whose production had climbed upward like the hypotenuse of a right triangle from the start. From the 364,000 pounds in its initial year of 1911, rayon in 1920 had topped the ten million-pound mark. By 1935, production exceeded 250,000,000 pounds, and was 700 per cent. better than the 1923 output. Last year, American rayon producers nearly reached 300,000,000 pounds, accounted for one-fourth of the world's rayon manufacture.

To observers in the field, then, the new year's auspicious start provided nothing to marvel about. A lay observer, noting the price of rayon, however, might have reason to marvel. Despite the continuing shortage, the price remained monotonously the same. In 1920, to be sure, rayon had cost $6 a pound, but that was before improved production methods brought it down. Through 1935 it held steadily at 57 cents a pound; last year, it increased slightly to 60 cents.

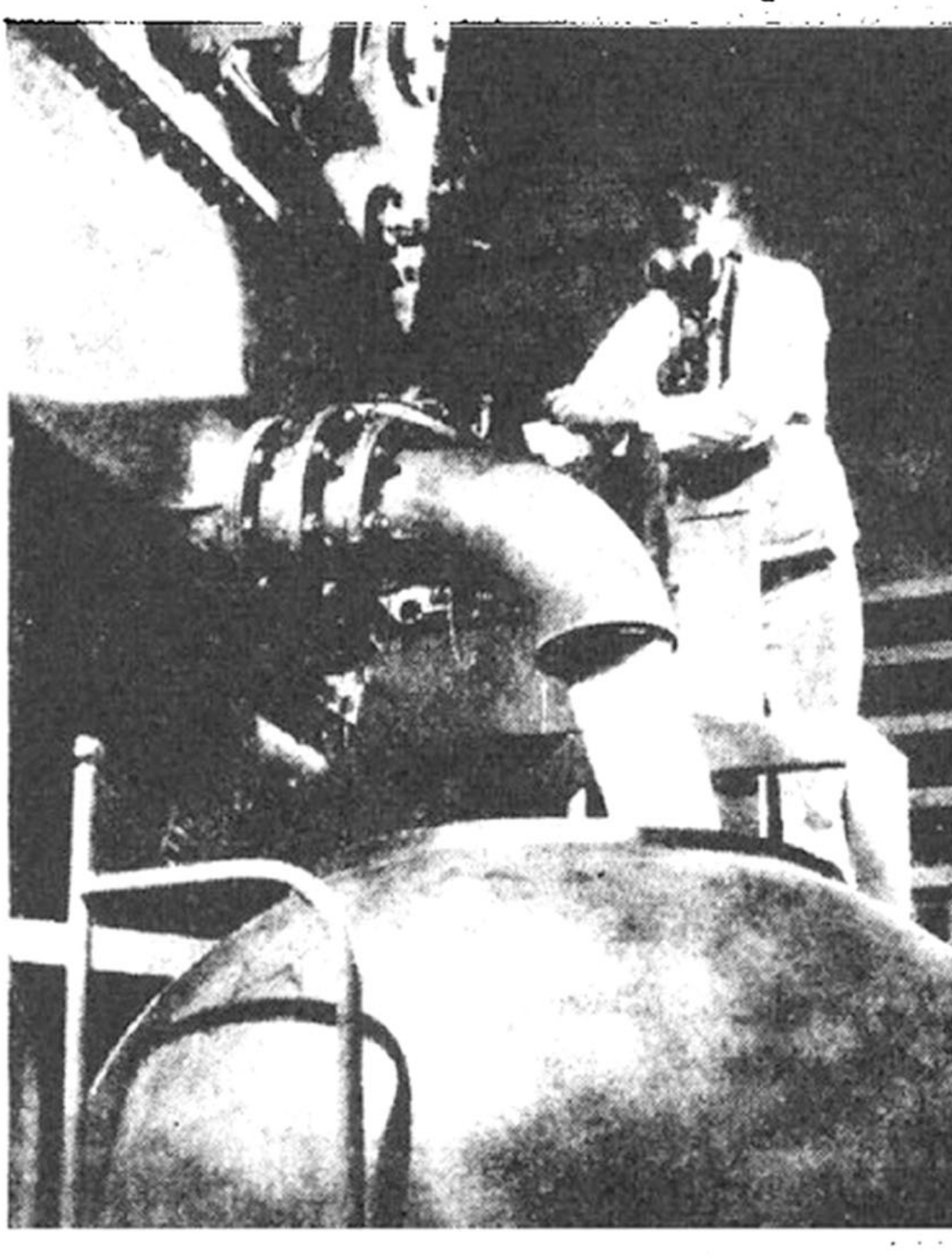
RAYON

Poser—The puzzled observer might have wondered, "don't prices always rise when there is a shortage?"

The answer is, not in rayon; and a rayon man could easily give three reasons why rayon prices haven't gone up:

First, rayon producers feel that 60 cents a pound yields an adequate profit.

Second, most important producers are now speeding plant expansion to meet the risen demand. The du Pont Rayon Co. plans to increase its 47,500,000 annual production by 9,000,000 pounds. The Viscose Co. plans to increase its 95,000,000-pound production by 20,000,000 pounds. Producers are reluctant to raise prices for



From mixer the cellulose in liquid form is run into huge jars for ripening

a little less than a year, then reduce them when plant facilities are expanded.

Third reason for failure of prices to rise is the most fascinating of all. That reason is Japan.

For the ironic truth is that Japan, whose silk industry American rayon has badly hobbled, has come back with a synthetic fiber industry which this year will produce more rayon than America will. That means Japan will produce more rayon than any other nation in the world. And Japan's rayon industry, founded on labor as cheap as only an Oriental economy can make it, is a loaded pistol pointed at the heart of American rayon.

It works like this: At 60 cents a pound, American producers can keep their $185,000,000 industry (latest value of manufactures) going at a reasonable profit. But Japan can sell its rayon for 20 cents, and even if one adds the American 45-cent-a-pound rayon duty, the Japanese can still sell in the American market at 65 cents. Which means that American rayon prices currently cannot top 65 cents without opening American dikes to a flood of Japanese rayon.

Advancement—Japanese progress in rayon, domestic producers insist, is truly a remarkable bit of industrial *ju-jutsu*. It is remarkable first because it took the Japanese a bare six years to achieve world leadership in synthetic fiber (in quantity production, at any rate). As recently as 1930, the Nipponese were turning out only 36,000,000 pounds of rayon annually.

The rise of Japanese rayon output is remarkable also because Japan produces most of the world's silk. And what the devil does a silk-producing country mean by manufacturing a machine-made fiber which to a large degree accounts for the present plight of silk? The answer is that the close-knit, family-like industrial community in Japan is made up of realists who must have foreseen even a decade ago what American ingenuity might do to silk.

They might well have foreseen, for in-

stance, just the sort of thing that the Commodity Exchange in New York reported last week, namely, that silk deliveries to American mills last year (50,000,000 pounds) had touched the lowest point in years, that silk consumption remained considerably under predepression levels and even under the levels of the first depression years.

And when one remembers that America takes about 90 per cent. of all silk produced in Japan, he will appreciate how truly foresighted Japanese industrialists were. Between 1925 and '29, Japan sold to America some 70,000,000 pounds of raw silk annually. The average price a pound during that period was $5.50. To-day, the price of raw silk at New York is $2.

Exchange Rate—It is true that the Japanese can get more yen for their dollars to-day than they could in 1929 (before the yen was devalued), and that the $3.50 difference between the current price and that of 1929 gives an exaggerated picture of the silk-price reduction. But even at that, the Japanese are to-day getting much less relatively for their silk than they did in 1929.

Nor can silk exporters raise their price much above $2, because whenever silk costs more than three times as much as rayon, the synthetic fiber producers rush in and snip off a little bit more of the silk market.

Finally, rayon yarn is wound on cones for the weaving- and knitting-mills

In 1920, consumers took three pounds of silk to every pound of rayon. Now, for every pound of silk sold, domestic producers sell five pounds of rayon. This means not only that silk consumption has lost to the extent that rayon has gained, it means also that millions of women who otherwise might have worn cotton slips and chemises and stockings are now able to wear rayon clothing.

Hosiery—Yet inexorably, and as rapidly as research genius can iron out relative quality shortcomings, rayon is cutting into silk. The one remaining silk citadel to withstand the onslaught of rayon is women's full-fashioned hosiery, for rayon as yet can not achieve the elasticity and extreme strength that silk gives in this product.

Of the 50,000 bales of silk used monthly in 1929, probably 20,000 went into hosiery. Altho silk consumption had slumped to 37,000 bales monthly last year, the demand by hosiery producers rose to about 25,000 bales.

Silk, of course, is not the only loser to rayon. In 1920, producers sold 340 pounds of cotton to every pound of rayon. In 1936, the ratio was only eleven pounds cotton to one pound of rayon. In 1920, similarly, producers sold thirty pounds of wool to every pound of rayon. In 1936, the ratio was three pounds rayon to four pounds wool.

RAYON

Copyist—What is rayon, anyway? It is a man-made fiber, and in producing it, man follows as closely as he can the method by which nature produces silk. Both rayon and silk come basically from cellulose, the difference being that nature, utilizing the silkworm as the manufacturing plant, gets cellulose from mulberry-leaves, while man gets cellulose from cotton-linters, or from spruce wood-pulp.

The silkworm digests the cellulose, produces a liquid which it squirts into the air from two natural nozzles in its head. When the fluid hits the air it congeals into a fine filament. With it the silkworm fashions its cocoon. For man-made fiber, cellulose is digested by chemicals in a vat which corresponds to the silkworm's stomach. The liquid so produced is squirted under pressure through microscopic apertures in a platinum spinnerret. This—man's substitute for the silkworm's mouth—contains openings three-thousandths of an inch in diameter. Machines catch the congealed filament as it leaves the spinnerret, spin it into yarn.

The cloth resulting from this process first made itself known to women shoppers as pink, shiny stuff to be purchased from bargain basement counters. To-day research has rescued rayon from the basements and proudly displayed it in smart Fifth Avenue shops in New York, Michigan Boulevard shops in Chicago, Hollywood Boulevard shops in Los Angeles.

Approved—At New York's swank Beaux Arts Ball recently, rayon achieved the final and indubitable stamp of smart consumers' approval. The ball was dubbed "Fête de Rayon Fantastique," and two thousand members of New York's "400" reveled in rayon.

While the Ball indicated rayon's acceptance by fashion and the *haut monde*, it indicated even more the alert showmanship of the industry. This showmanship has persistently and ingeniously dramatized rayon's qualities.

With comely manikins and continuing style shows, producers boldly emphasize the point that rayon is not an imitation of any other fiber. It is versatile and has qualities all its own. Dirt, say rayon producers, does not adhere as readily to rayon as to rough, uneven surfaces. Thus it is practical for chemises, light summer clothes, curtains. White rayons, declare manufacturers, won't turn yellow in sunlight, in washing or in dry cleaning. That in itself, is a triumph for rayon, for in 1926, a Maryland Association of Cleaners and Dyers was still warning its members that a certain brand of "rayon silk" became hard and brittle when cleaned, that members dyed it at their own risk. Rayon producers point out that their product is easy to wash, resists abrasion.

Furthermore, rayon manufacturers are not abashed at comparing their product with silk. Rayon manufacture is scientifically controlled all the way. Man can therefore regulate filaments, make them extremely fine (one-third that of silk for sheers) can make them dull or lustrous.

In 1935, 800,000,000 yards of rayon went into all woven fabrics, into transparent velvet, rough crêpes, sheers, satin back and other crêpes. It went into braids and trimmings such as artificial straw for millinery, and into women's apparel chiefly.

Esquire—Rayon producers' attention of late has also turned to men. With rayon a man now can clothe himself in shorts, undershirt and socks, in a rayon worsted suit, tie, handkerchief, shirt, sandals, cap. He can drive to work on an automobile-seat-cover of rayon and be warmed by artificial wool made of rayon. He could have decorated his Christmas tree with rayon streamers, and when summer comes, he can swim in a rayon bathing-suit or

loll on the beach in a rayon robe. A man is likely to find his suit is lined with rayon, for 90 per cent. of all suits are thus lined, and manufacturers have now begun in earnest to develop rayon suits for men.

New uses for rayon, such as these men's suitings, don't just happen. They are ferreted out. And ferreting out new uses for rayon is almost as vital a part of the business as producing the fiber. On research last year the du Pont Rayon Co. spent almost $6,000,000. The Celanese Corporation in 1935 spent $600,000.

For that reason, no observer can predict what is liable to plop from the rayon researchers' laboratories. Patents sought by the rayon industry have given Patent Office clerks writers' cramp. Now searchers for rayon refinements are likely not to bother about seeking patents. They will seek rather to keep their findings secret, for patents don't always protect.

Opportunity?—A reader noting the bustling condition of the industry and noting also that manufacturers have a market for all the rayon they can sell and more, would be justified in observing that rayon is an excellent business to get into, and asking why new producers don't come running and mushroom production overnight.

The answer is that rayon manufacture requires substantial capital, say $2,000,000 as a minimum. So the industry boasts a relatively modest number of producers, sixteen in all.

Of these sixteen, the Viscose Co., organized in 1910 and oldest in the field, is largest. Its 95,000,000 pounds production of yarn in 1935 doubled the 47,500,000 pounds of its nearest competitor, du Pont.

The Viscose Company is proud of its President, Samuel A. Salvage, a sort of Nestor to the rayon industry. Two years ago, a rayon trade paper boasted that it had obtained the first intimate biography of "the father of the American Rayon Industry."

That intimate biography revealed Mr. Salvage's birthplace (London), the fact that he chose to come to America rather than matriculate in an English university, that in America he started out in the yarn business. Nothing more.

More important than Mr. Salvage's biographical taciturnity is the fact that Viscose is not only the largest producer in America but is the property of the English Courtaulds' Ltd., world's largest producer of rayon and owner of substantial rayon plants in Germany, France and Canada.

Third in output (35,000,000 pounds annually), but probably most widely known among consumers, is the Celanese Corporation of America. It is probably best known to consumers because the company's founders had the shrewdness to invent for their fiber a name which has become as well-known in rayon as Kodak is in cameras.

The company has always insisted that its Celanese is not rayon.

Clean—To the rest of the trade, however, rayon is the generic term, and Celanese is the Celanese Corporation's trade name for an acetate process discovered by the Dreyfus brothers, Henri and Camille. Once the acetate process was exclusive with the Celanese Corp., but other producers have now taken it up. Most rayon (about 80 per cent.) is still made by the viscose process, however. Such an impartial observer as the du Pont Rayon Co., which manufactures rayon by both acetate and viscose processes, declares in a bulletin that rayon yarns of the acetate type are more immune to stains from perspiration, grease, ink, fruit-juices; that they absorb less moisture and have superior draping qualities.

The Celanese President, Camille Dreyfus (brother Henri cares for interests in

London) came to America after developing his acetate rayon in England, and in 1925 began producing Celanese.

Loud and raucous were his early wrangles with the rest of the trade over the qualities of rayon and Celanese. Dreyfus shrewdly priced his Celanese higher than other rayon, aimed at the quality consumer, insisted that Celanese alone was made by the acetate process and that it was absurd to consider it rayon.

Camille's row with other rayon producers is now almost forgotten. One thing about Camille the trade will never forget, however, and that is his showmanship. He wears all the Celanese products he can put on his back, on his legs, on his head. He has outfitted the boudoir of his wife (Jean Tennyson Dreyfus, former Earl Carroll *prima donna*) with all-Celanese trimmings.

Nor is that all. On his desk is a red telephone fashioned from cellulose acetate, raw material for Celanese. Camille likes to proffer the instrument to callers, insists that it feels better against the ear than the ordinary kind.