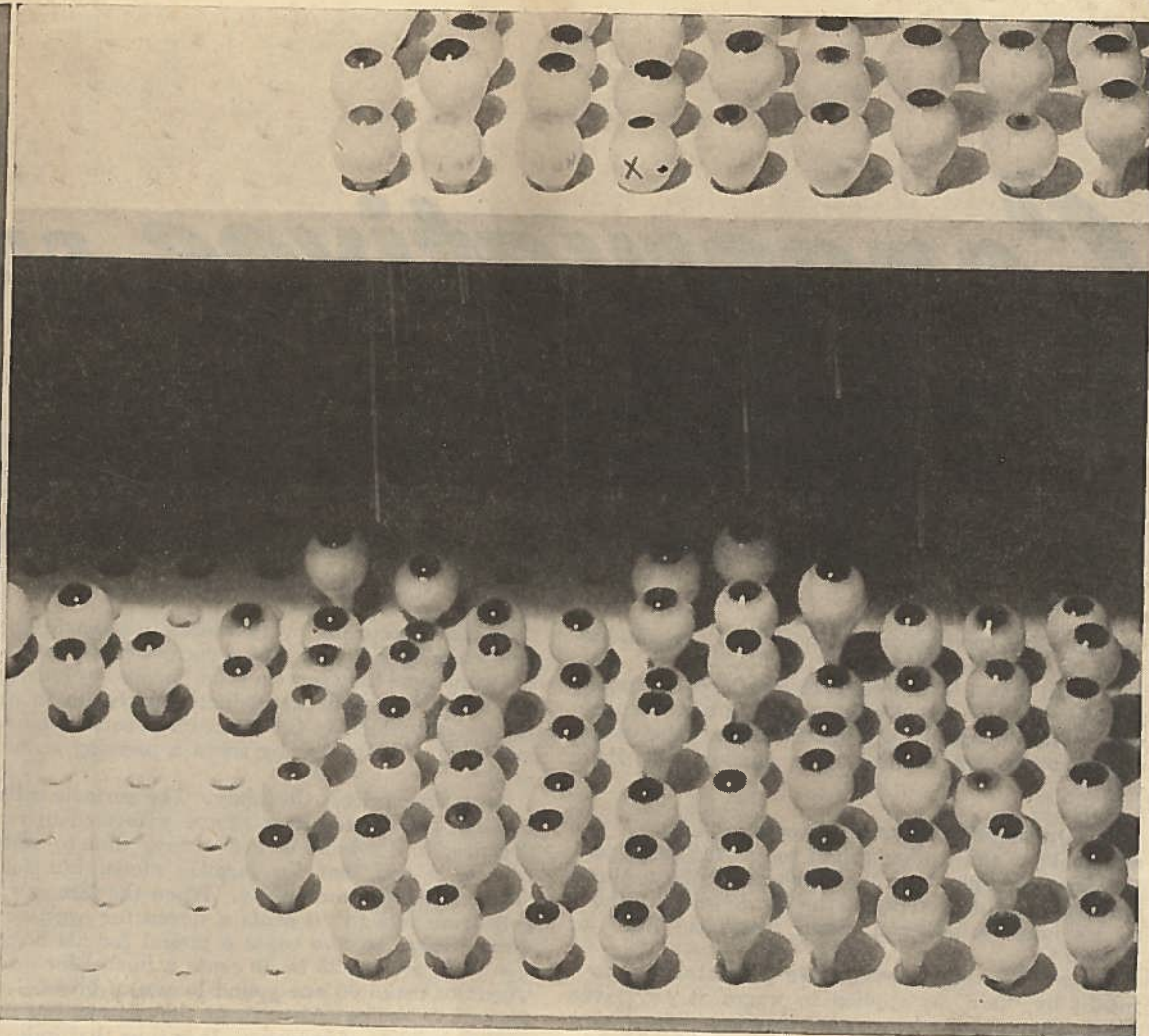




Blending the colors . . . great skill is required.



Glass eyes in the making . . . 40,000 Canadians wear one.

—Photo by Jerry Haley

EYES for the EYELESS

By LARRY GOUGH

All it takes to make a glass eye is a secret process, the patience of Job, the hands of a surgeon and the lungs of a cheer leader

SOMEWHERE in the Canadian Army there's a noncommissioned officer who must surely smile to himself every time he says "Eyes Right." Tall, husky and handsome, he's a fine soldier and a perfect physical specimen in every respect but one—he wears a glass eye. He has worn it since before he joined the Army. No one who knows him is aware of his extra, nonregulation piece of equipment, not even the Army doctors who passed him in A category. But that's not as strange as it may seem at first. Everyone has heard of the odd case where a man with one good eye and one bad one has managed to bluff his way into the forces by memorizing a chart beforehand or by reading from the chart twice with the same eye while giving the pretense of using one eye after the other. Well, a man with a glass eye has as good a chance of getting away with it as anyone else—maybe better. The glass eye if it is a perfect match and a good fit looks strictly natural, while a living but weak eye may give itself away to a doctor even before any tests are made.

If you don't believe that a glass eye could fool even a rushed and harassed Army examiner then you won't believe that one could fool an oculist in private practice. But it can, and occasionally does. If you've ever had your eyes examined for any reason you know that the doctor first puts drops of atropine in them to make the pupils dilate. That's so he can see better into their depths. There have been cases where a

doctor has put atropine drops into a new patient's eyes, left him for a few minutes to give the drug time to act and come back to find one pupil still undilated. Slightly baffled but still unsuspecting he has put extra drops in the unco-operative eye. When the pupil still wouldn't change, of course, he has known immediately what the score was. The eye was an artificial one. It's probably a little embarrassing for a minute or two but it's nothing to be ashamed of. A good glass eye is a work of art—it's meant to fool people.

The history of artificial eyes doesn't seem to be very complete but it is known that they have been used for a good many thousand years. King Tut, when his tomb was opened, was found to be wearing a pair of remarkably lifelike artificial eyes. Other Egyptian mummies and statues have them too. Sometimes the ball was made of glass or obsidian and the iris was a piece of inlaid copper. Sometimes the iris and pupil were simulated in an artistic and intricate piece of mosaic work.

About 100 years ago the art of eye making took a big jump forward when a German glass blower by the name of Müller found a formula for combining sand, potash and bone ash to make a glass that really corresponded in sheen and opacity to the human eyeball. Müller had a good thing and he knew it. The secret still remains locked in the bosoms of his direct descendants in Lauscha, Germany.

Glass From Germany

RIGHT up to the beginning of the present war all the glass used in the making of glass eyes on this continent was imported from Europe, and so were nearly all the eye makers. Several hundred pounds of the precious stuff was sent to America each year and that small portion was divided at the Müllers' discretion among the few makers who clamored for it.

Along with their yearly export of raw glass the Germans sent about 40,000 ready-made eyes of different shapes and colors. They were "stock" eyes and most Americans and Canadians had to be satisfied with one of those when they needed an artificial eye.

But not all Canadians, by any means, had to pick their eyes from stock. Although eye makers are as scarce as the proverbial hen's teeth Canada claims one of them, and he's one of the best. He's Captain Clifford A. Taylor, director of the Ophthalmic Division of the Department of Pensions and National Health. Captain Taylor has a laboratory in Christie Street Hospital in Toronto where he, with the help of three assistants, one of them a girl, makes eyes for service veterans. He also manages to find time to carry on a private practice from a downtown office in the evenings.

Being an expert eye maker calls for the patience of Job, the hands of a surgeon, the lungs of a cheerleader and the color sense of an artist. Then, if you have all those attributes, you need the stamina of a truck horse to keep up with the demand for your work. Captain Taylor has them all and, which is just as important, he has the glass.

A middle-aged man now, Captain Taylor has been at ophthalmic work all his life. He has studied physics, chemistry, optics, sculpture, painting and mechanical dentistry in the years during which he has developed the complex skill of the expert eye maker.

The art of glass blowing for eyes required 12 years of intensive study. He is a veteran of the first world war and it was during the last months of that conflict that he decided to enter the specialized field he works in now. While in England he worked under the tuition of a famous French sculptor and when he came home after the war he was retained by the Canadian

Continued on page 56

New Cream Deodorant

Safely helps
Stop Perspiration



1. Does not harm dresses, or men's shirts. Does not irritate skin.
2. No waiting to dry. Can be used right after shaving.
3. Prevents under-arm odor. Helps stop perspiration safely.
4. A pure white, antiseptic, stainless vanishing cream.
5. Arrid has been awarded the Seal of Approval of the American Institute of Laundering, for being harmless to fabrics. Use Arrid regularly.



ARRID IS THE
LARGEST SELLING
DEODORANT

ARRID

39¢ a jar
(Also in 15¢ jars)

Buy a jar of ARRID today at any store which sells toilet goods.

A RESIDENTIAL SCHOOL FOR GIRLS

Alma College

ST. THOMAS
ONTARIO

Famous Canadian School for girls founded 1877. For Illustrated Prospectus with full information regarding courses, fees and College life, write to the principal—
Rev. P. S. Dobson, M.A., D.D.

REOPENS SEPTEMBER 13th

LAVORIS

For Social Confidence

Personal charm requires absolute mouth cleanliness

system and has no obligation to assist education financially. I am of the view, however, that financial assistance should be provided out of the Dominion Treasury so that provinces not now able to achieve it may assure a reasonable standard of education to every child.

(30) Question—What is your view of the future relations between English-speaking and French-speaking Canadians?

Answer—The people of both races are human beings and Canadians. They should treat each other as such. Neither should be pampered and neither should be penalized to the disadvantage of the other because of language or any other matter. Within the terms of the law and the constitution, Canadians of whatever racial origin should be treated on exactly the same basis. We should cultivate harmonious relations at home and in the Commonwealth family and seek by demonstration to prove to the world that peoples of different races and creeds and nations can live together in peace and amity.

(31) Question — Should Canada have her own national flag? Her own national anthem?

Eyes for the Eyeless

Continued from page 12

Government to make eyes for servicemen who had lost them in the last war.

Like other eye makers on this continent Captain Taylor for a long time used to get his glass from Europe. Also, like the others, he began to be concerned about his supply when it became obvious that the second world war was developing. However, unlike some of the American makers, he didn't rush off to Europe to try to haggle for a supply of glass before trouble started. Instead he went to work on the problem of making his own.

"Somehow," he says, "and I can't explain the steps that led up to the discovery, I found the secret. I was fortunate enough to have the help of researchers for one of the big American glass companies and after a lot of work we finally had success." He doesn't know if his secret is the same as the one found by Müller, but he does know that his glass is just as good.

Actually there are seven or eight different kinds of glass in every eye. "The glasses," says Captain Taylor, "vary in color, hardness and other properties. The ball itself must be made of one kind; the base of the iris is another; the variations in the iris call for three or four others; the pupil is another; and the cornea covering is still another."

Glass for the white of the eye, or sclera, is made first in the form of a hollow tube about the size of a curtain rod. It's heated and drawn down to the thickness of a soda straw when the

Answer—If and when the majority of Canadians so desire.

(32) Question—In the event of an election giving Progressive Conservatives the largest group in the Commons, but less than an over-all majority, would you be willing to form a Government?

Answer—The answer is, Yes. Public responsibility requires that the Government be carried on; and precedent suggests that the leader most likely to command a majority should be asked to form a government.

(33) Question—In the event of an election giving the CCF the largest bloc of seats, but by which Progressive Conservatives and Liberals combined would have a majority, would you be willing to enter a coalition?

Answer—It is most unlikely that the first mentioned situation will arise. The possibility is so remote that it is but idle speculation to discuss it. I will say, however, that no leader of a responsible Party has any right to decide in advance whether he will form or enter into a coalition or not.

We are laying our plans to have a majority of our own. If we fail in that we shall decide what to do in the light of the existing situation.

job of blowing the ball begins. From this point on all the work demands the skill of an accomplished glass blower.

A ball about the diameter of a 50-cent piece is blown on the end of the "straw" and the bulbous end is sealed and slightly flattened. The eye retains that shape right up to the final shaping for the individual socket it is to fit. The tube serves as a handle and as a blow-pipe through which the blower's breath controls the shaping of the eye.

That's where the secret properties of the sclera glass come to the aid of the blower. The "opal" can be made to disappear or return by a skilled application of the flame. At one moment the ball in Captain Taylor's hand may be the milky-white of a natural eyeball; the next moment it is crystal-clear. When it is clear the blower can see what he is doing on the front of the ball even while the tube is in his mouth. When the color is satisfactorily applied he can burn the "opal" back in.

Other rods of solid color are selected for the little lines of variation that are in every human iris. These lines may be blue, white, green, or brown in a wide range of shades. There is always more than one color represented. Thin rods of the needed colors are drawn out and twisted together in a single spiral rod. There may be a tiny thread of white, a thicker thread of light blue and a still thicker thread of a darker blue in the spiral. The proportions have to be judged carefully so that the finished eye will exactly match the natural eye it will be worn with.

When the variations of the iris have been applied and burned in their turn right into the base, tiny threads of red are put on the sclera to represent the minute blood vessels that are found in the white of every eyeball. Some eyes have very few of them and appear to be almost pure white; others have so many that they always have the appearance of being slightly bloodshot.

The pupil comes next and is burned into the rest of the glass in just the same way. It is a round spot of either very dark blue or very dark brown, depending on the basic color of the iris. In either case it appears to be black after it has been burned in.

The last glass of all is the crystal-clear covering that forms the cornea of the eye. It, like all the other glasses used, has its own special characteristics.



NO DULL DRAB HAIR

When You Use This Amazing

4 Purpose Rinse

In one, simple, quick operation, LOVALON will do all of these 4 important things to give YOUR hair glamour and beauty:

1. Gives lustrous highlights.
2. Rinses away shampoo film.
3. Tints the hair as it rinses.
4. Helps keep hair neatly in place.

LOVALON does not permanently dye or bleach. It is a pure, odorless hair rinse, in 12 different shades. Try LOVALON.

At stores which sell toilet goods

35¢ for 5 rinses
15¢ for 2 rinses



How to Relieve 'PERIODIC'

FEMALE PAIN



And Help Build Up Resistance Against It!

If you, like so many women and girls suffer from cramps, headaches, backache, weakness, distress of "irregularities", periods of the blues—due to functional monthly disturbances—

Start at once—take Lydia E. Pinkham's Vegetable Compound. This well known liquid not only helps relieve monthly pain but also tired, weak, nervous feelings. This is because of the soothing effect of its effective roots and herbs on ONE OF WOMAN'S MOST IMPORTANT ORGANS.

Taken regularly — Lydia Pinkham's Compound helps build up resistance against such symptoms. Thousands upon thousands of women have reported many benefits. Also a fine stomach tonic. Worth trying! Made in Canada.

Children love playing with

'Plasticine'

The famous modelling material made by HARBUTT'S

It must be clear, shiny and very hard.

Not Spherical

It's at this point that the truly ticklish work begins. A glass eye, contrary to popular belief, is not spherical; in fact it is not even round. It has one convex and one concave face and it's shaped something like one of the more common kinds of sea shells or like a squat and slightly lopsided pear. The convex, or outer face, is smooth and has an even curve. The concave, or inner surface, may have an even curve or it may have bumps and hollows. Every socket is different and each eye must be made to fit perfectly if the wearer is to have comfort and the maximum amount of motion in it. A well-fitted eye, by the way, in an uninjured socket, is molded to cling so closely to the muscle surfaces in the socket that it may have up to 90% of normal motion. It is only when the muscles turn it far in or far out that it lags behind a normal eye.

It is estimated that between 30 and 40 thousand people in Canada wear a glass eye. Not all of them, of course, are made by Captain Taylor, although he is the only custom maker in the country. Many of the people who need an artificial eye are quite satisfied with one from the stocks maintained by several of the large optical houses. "Stock" eyes are in most cases just as well-made as custom eyes. Many of them were originally custom eyes that did not exactly meet specifications as to color. It is more than likely that the average person could find in such stocks an eye that would match his own remarkably well. However, if he wants to have an eye that will fool even the closest observers, he'd better get a custom-built job. Stock eyes cost anywhere from five dollars up, while a custom-built eye will cost from \$15 up.

The main problem that confronts the wearer of a glass eye is replacement. Body acids discolor and ridge the eye after it has been worn for a while. The length of time varies with individuals but the average life of an eye is about a year. If a glass eye is dropped on a hard surface, of course, it will probably break.

Glass Eyes Explode

There is one problem, which arises occasionally, that is a real startler. Glass eyes sometimes explode! It's not as serious as it sounds, though; nobody has ever been injured by such an explosion, even when it has happened when the eye was being worn. It only happens when the eye, usually a stock one which has not been replaced as soon as it should have been, is weakened by the body's acids to a point where a sharp change in temperature causes the thin glass to crack. Or an explosion could occur if all the air had not been withdrawn from the hollow shell when it was made.

One eye maker and supplier in New York, Gustav Schoepfer, has millions of eyes, including practically every kind. Most of his work is done for taxidermists and they are apt to turn up with requests for anything from the minute eye of a minnow to the huge glaring orb of a swordfish. Minnows', butterflies' and beetles' eyes seem to be the smallest, while swordfish and tarpon have the largest. Schoepfer has in his stock eyes for all those as well as for almost anything else you might care to name, from an anteater to a yak.

Probably the most unusual eye supplier in the world is the Denver Optic Company in the United States, which does about 95% of its business by mail order. Before the war started the company had a stock of about 125,000 eyes and was prepared to

match practically any eye that might need a mate. Eyes have been sent from Denver to every continent on the face of the earth and most of the customers come back for more.

Eyes By Mail

The technique of selling glass eyes by mail is comparatively simple. Sometimes a customer is able to send in a color photograph of the eye he wants matched. More often he just describes it as well as he can. When the company gets an order it packs up a little kit with a dozen or so eyes that correspond closely to the mailed description. The customer picks the one that suits him and fits him best and sends the others back. Before the war hundreds of people would drive out Denver way during their summer vacations and pick up a new eye right on the spot.

The war, however, has had a more important effect on the artificial eye business than just cutting down the Denver Optic Company's over-the-counter customers. As has been mentioned already the loss of Europe as a supply source caused a great deal of confusion among the makers who were short of glass.

The big result of the shortage, aside from the fact that one of the big U. S. glass companies has done a tremendous amount of research in trying to duplicate the German glass, is that some makers are using an acrylic resin, or plastic, for their product. Manufacturers who use the plastic claim it has several advantages over glass.

First of all, they say, plastic eyes will not break when they are dropped, nor can they explode. They also claim that plastic eyes are more "sympathetic" to the tender tissues around the eye; that they look more natural because they reflect less light; that they keep their color and stay shiny longer, and that they can be worn longer before they have to be replaced. In fact, they say, a plastic eye may last a lifetime.

Eye makers who are not using plastic (either because they have a stock of German glass left or because, like Captain Taylor, they have managed to find their own glass formula) say that plastic eyes have not been put to the test for long enough to prove themselves. Some of them feel that the polishing of the plastic causes small pits in the surface of the eye which will in time irritate the eyelids since they travel over the surface of the eye anywhere from two to three thousand times a day. Glass, they point out, does not have to be polished; the cornea glass is perfectly smooth when it is fused onto the ball.

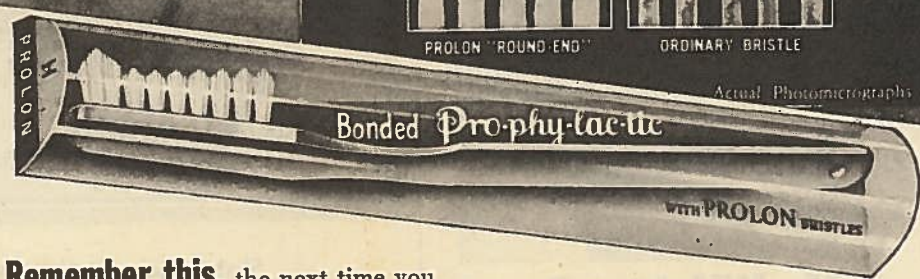
But the problems of the eye makers are not the most interesting aspects of the glass eye story. It's the foibles of the people who wear them that make artificial eyes intriguing. A glass eye is nothing to laugh at, of course; every one is a reminder of an irreparable loss. But sometimes, too, it can be a symbol of the spirit that lets human beings take their tragedies lightly.

There is, for example, a customer of one of the U. S. eye makers who lost his eye in an accident. His natural eye is brown—but did he order a brown eye to match it? Not he. His wife, he explained, had always admired blue eyes, therefore he was going to have a blue eye for her to admire. He has it now and they're both happy about it.

Or there's the case of an officer in the Royal Canadian Navy. He lost an eye in the Halifax explosion of the last war and has had an artificial eye ever since. Or rather he has had a complete set of artificial eyes. He has eyes that match his natural one under all circumstances. If it's a fine day and he's feeling chipper



For years only hog bristle made fine tooth brushes. Then Science made round-end **PROLON**



Remember this, the next time you buy a tooth brush: Years of laboratory research have produced amazing new synthetic bristles.

"Prolon" is our trade name for the very finest grade of this synthetic bristle.

PROLON—No Finer Bristle Made

Among these new synthetic bristles being marketed under various trade names, *none is finer . . . none is more durable . . . none is more costly to produce than Prolon*, the synthetic bristle in the Bonded Pro-phy-lac-tic Tooth Brush.

Only PROLON has "Round Ends"

Prolon, in fact, has a very important plus which no other synthetic bristle has. It is the only bristle that is rounded at the ends.

Yes, it's a fact! *Under a special pat-*

ented process, exclusive with Pro-phy-lac-tic, we smooth and round the end of each and every Prolon bristle in the Bonded Pro-phy-lac-tic Tooth Brush. See for yourself how much gentler these round ends are on tender gums!

And with PROLON these other "extras"

In addition to Round-End Prolon, the Bonded Pro-phy-lac-tic Tooth Brush gives you these three important "extras": 1. The famous Pro-phy-lac-tic end tuft, for ease in reaching hard-to-get-at back teeth. 2. Scientific grouping of bristles to permit thorough cleansing of brush after using. 3. A *written* guarantee for six full months of use.

Next time, get the most for your money . . . get the Bonded Pro-phy-lac-tic Tooth Brush.

PRO-PHY-LAC-TIC BRUSH CO. (Canada) Ltd., Toronto

P.S. We also make this 25¢ brush . . . the best buy in the lower-price field.



Pro-phy-lac-tic + NYLON
Lowest priced Nationally Advertised Tooth Brush in the Country

MADE IN CANADA