

GENERAL SCIENCE

Post-War Promises

Discoveries which today are aiding the Allies will make our lives more enjoyable after the war, but their application may be slow.

By WATSON DAVIS

► THE TRANSITION from a war world to a post-war world will be gradual with many jolts. We will not all be able to buy that new automobile or television set in the year of Jubilo.

We will not be able to burn our ration stamps. We will not all rush down to the airport and reach the ends of the earth in 60 hours for well-earned vacations. But there are things that we can see coming if we look in the right places.

A chemical has been developed, that provides a sort of invisible raincoat for anything that is dipped into it. Yet the highest power microscope can not reveal a tangible film upon the substances so treated. A treated piece of paper dipped into water is unaffected and drops roll off it more effectively than off a duck's back.

So keep your eyes on the silicones and the methyl chlor silanes, as these most promising organic silicon compounds are known. Imagine how useful they will be in the post-war era when they come back from the wars.

There are other materials that are extremely plentiful that we may be using more widely. A sort of clay, bentonite, for instance, is a promising raw material from which artificial mica has been made. We can make aluminum from clay if we have to.

Houses Made of Glass

Sand is one of the oldest of raw materials. It is used in making glass. Glass is today something more than glazing for windows. Whole houses can be made from blocks of it. Germans are said to be wearing glass clothes now and all of us may be wearing glass fiber textiles in a post-war world.

Glass fiber is an important war material, appearing in camouflage nets and insulation alike. It ranks with optical glass as a critical material. It is not too far fetched to suggest that clay and sand in these forms may be packaging materials of the future.

New plastics are going to give more

competition to the old-line textile fibers, such as cotton, wool, linen, and silk if the Japs are ever allowed to produce it again. But it is not at all impossible that we shall be clothed in the future with a sort of cloth that needs no weaving.

Textile fibers, synthetic or natural, can be made into a cloth-like sheet by the use of paper-making technique modified so that plastics mingled with them form a lattice which gives the material some of the characteristics of woven cloth.

The trick is that the thermoplastic fibers weld together the others. This is no future dream for a material of this sort has replaced the old-fashioned cloth teabag. We may even come to the day when we can have new fresh clothes whenever we wish to change such synthetic "linen" or send a suit to be reclaimed.

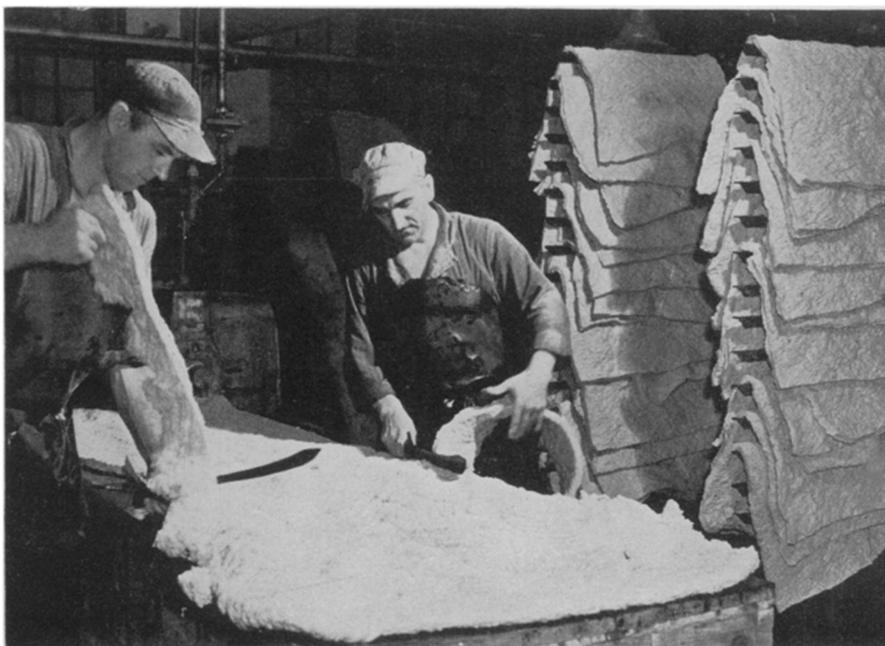
Present laundries might give way to clothing factories that have speedy production lines for stamping out by the

millions such expendable outfits. They then might be said to be in the business of packaging human beings in a variety of styles and sizes.

There are at least a dozen rubbers—elastomers, the chemist calls them—in production from oil, coal or vegetable substances from down on the factory-farm. Our chemical rubber production has had to be accelerated at such a tremendous rate to catch up with the fast one that the Japs pulled that we don't know quite yet just what it means in the years to come.

It is very unsafe to tell the chemist you need a substitute for a natural product and give him a chance to produce it because he is usually able to produce something that is better, and in the long run cheaper, than what has been used. Certainly all of the synthetic or artificial rubbers are here to stay for special uses and it is not impossible that some of them will be so much better for tires that they will be used even when the tree-grown sort is again available.

Lignin, partner to cellulose in wood, has been much neglected and can be expected to be more usefully employed as a raw material for plastics, Casein,



SYNTHETIC RUBBER—Another product of the chemist which will be tailor-made to give superior products. This shows newly rolled sheets of synthetic rubber being cut to size for the drying pans.

whether from milk, soybeans or some other product, can give wool a run for its money and double for many plastics.

When nitrogen was snatched from the air for explosives and fertilizer (and that was one thing that gave the Germans the jump chemically in World War I) we mined the air. In this war we are mining the ocean for the light metal magnesium just as we earlier mined the briny deep for bromine used to make anti-knock fluid for the improvement of gasoline. So we have utilized almost all natural sources of the earth in one way or another.

Even the atom may be mined for power and we only hope that our side does it first. This is a great and important research problem that we haven't had reports from since shortly after the fall of France in 1940 when our scientists were given a stock of shiny new rubber stamps that print SECRET. You will remember that through atomic bombardment the uranium atom U235 can be split asunder with the release of more energy than is put into it.

If this or some other such process is made practical and controllable, it may make coal mines, oil wells, water falls, and other sources of power obsolete and worthless. This probably wouldn't hap-

pen in a hurry and the transition would probably be gradual because of the natural cussedness of development difficulties if not by government regulation.

Even without the miracle of cheap power from the atom, there will be amazing production of power in the future. We are now producing in a couple of months as much mobile horsepower in aviation and auto engines as is installed in America's central stations and that's millions of mechanical horses.

The Diesel engine, lusty as it is, is still youthful and full of greater promise. We have not yet explored all the real possibilities and practicalities of tapping the power of the wind or the heat of the earth's interior. Transmission of power over short distances via ultrafrequencies has been hinted at.

We have heard much about 100 octane gasoline but for the future we shall probably hear about 150 octane, which means smaller and more powerful engines, running farther per gallon and per dollar. After the gasoline is made from petroleum there will be still enough liquid gold from the earth to use it, as it is being used, as a chemical raw material of great fruitfulness.

The appearance of that postwar auto that you would order if the dealers would let you may not be what the advertising departments dream it will be. It will be different from the 1942 model and it may not even look like that jeep every small boy wants to drive. There is one good bet. There won't be so much excess weight to cut down gas mileage.

Helicopters for All

The automobile may take second place in the wishing-to-have contest to the helicopter that can hover, take off backwards and land on the front lawn. Come July in the years to come and human fancy will probably turn to that helicopter hop to the place in the country and a week-end cruise two or three times via world airlines to Casablanca or the Fijis.

Talking around the earth is now a daily household sound and we shall, after the war, be able to see at a distance. Television is on the horizon, if not over it. It is all a question of what we want. We must decide whether or not we have our eyes as well as our ears projected into space and thus invade the privacy with which distance has hitherto shrouded distant places and people. It is technically possible to have television in color and with realistic perceptual depth.

We who use it will probably decide one way or the other whether we want

to bring into our homes and offices something that we have to look at with our eyes as well as listen to with our ears.

Radar detects planes and ships scores of miles away by reflections of ultra-high frequency radio waves. It is an industry larger than the making of broadcast sets in pre-war years.

Application for Radar

There will be important peacetime applications of such electronic devices where our airplanes fly blindly through fog and night with safety. There will be applications of such devices on vessels at sea when it is safe to go to sea again. It is a little hard to see how we can use such devices in our kitchen or living room when they are removed from the secret military list. You may be sure, however, that the vast experience being developed in the use of high frequency radio waves will bring us many services which it is now hard to visualize.

Facsimile radio for homes and offices may very well provide a continuous ticker service. Personal radio will be used more like a telephone without wires but most of us won't wish to carry around with us a walkie-talkie in order not to miss a telephone call that we don't want to receive.

Despite the frightful human slaughter that war causes, especially the kind of war of extermination practiced by the Nazis, those of us safe here are amazingly healthy. Sulfa drugs, germ fighters from soil bacteria, and even cures and preventives of such diseases as cancer, and tuberculosis may cause us to live longer if not more merrily.

We shall be able to stay fit longer and retire later in life. We may hope for better understanding of the foibles and mental quirks of our temperaments.

Microfilms, popularized by V-mail, may carry a major burden of the world's speedy intelligence between far places, while the miniature photographic images will preserve and condense the astounding volume of the written record of our complex civilization, probably much more of it than should be preserved.

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Over 60% of the American corn crop is now used to make starch, sugar, syrup, alcohol and alcoholic beverages.

Since the purchase of Alaska from the Russians, through 1942, the value of the fishery products, exclusive of aquatic furs, has amounted to approximately \$1,500,000,000.

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