this frenzy of economy, brought about by those who control the wealth of this country, seeking to put a barrier on science and research for the paltry sum of $39,113 out of an appropriation of $100,000,000? Science will go on when existing political parties will long have been forgotten.

I am sorry that the distinguished leader of the Republican Party in the House states that he is not versed in botany and publicly admits that he does not know anything of these terms or what it is all about; but, Mr. Chairman, it is indeed a sad day for the people of this country when we must close the doors of the laboratories doing research work for the people of the United States. The gentleman from New York says it is all foolish.

Yes; it was foolish when Burbank was experimenting with wild cactus. It was foolish when the Wright boys went down to Kitty Hawk and had a contraption there that they were going to fly like birds. It was foolish when Robert Fulton tried to put a boiler into a sail boat and steam it up the Hudson. It was foolish when one of my ancestors thought the world was round and discovered this country so that the gentleman from New York could become a Congressman. (Laughter.) . . . Do not seek to stop progress; do not seek to put the hand of politics on these scientific men who are doing a great work. As the gentleman from Texas points out, it is not the discharge of these particular employees that is at stake, it is all the work of investigation, of research, of experimentation that has been going on for years that will be stopped and lost.

The next day, when another item in the same bill was under consideration and the point was made that research in agriculture might well be curtailed because of current overproduction, Major LaGuardia said further:

I want to say to my colleague, the gentleman from New York, that I believe he is confusing the purpose of experimentation and research work of this kind with the immediate question of production. Surely we can not delay scientific research until the time comes when this country will need greater production. That indeed would be lack of vision. The very purpose of this kind of investigation and study is to have the information complete and ready when it is wanted, for it can not be developed overnight. . . .

Momentary overproduction is not the important question. The important question is the continuing of study to correct the defects of nature. The most fascinating part of human activity is its constant combat with nature in fighting the elements and in correcting the defects of nature. This has engaged the attention of mankind from the earliest times of which we have record. Assuming, if you please, that we now have overproduction and production of more commodities than the people of the country have ability to purchase, that is no justification for closing the doors of these laboratories, closing the doors to scientific research and stopping it. We must continue it. The population is constantly increasing. Some day the legislative branch of government will keep abreast of science. Why, Mr. Chairman, the most humble research scientist in the Department of Agriculture is at this time contributing more to his country than the most useful Member of Congress. The most humble engineer in the General Electric Laboratory or the Radio Corporation of America Laboratory is more useful to humanity than the most brilliant orator of this House. The trouble is that the legislative branch of government has not kept abreast with science. Government has lagged, science has advanced. We have permitted an unbalanced system of distribution to continue while science has increased production. We are living in the paradoxical state where there is great overproduction on the one hand and want and misery on the other. This is not the fault of science. This is the fault of government. This is the fault of men who have control of the governmental affairs of the country.

I want to plead with my colleague, the gentleman from New York (Mr. Taber), in his eagerness—and he is sincere and works hard on these bills—not to be too hasty in cutting down these appropriations to continue this scientific work, so that when the time does come we will have the information available. I repeat, if the science of government had only advanced along with the progress made in electricity, chemistry, mechanics, transportation and agriculture, we should not to-day find ourselves in the midst of a ruinous financial crisis. While science and the arts and mechanics were progressing, government was struggling along with laws and economics founded on principles accepted centuries ago. To-day we are still endeavoring to struggle along under construction and limitations of a constitution drafted and accepted at a time when steam had not yet been applied, before the railroads, before the telegraph, when electricity was entirely unknown, and in the days of hand production. Yes, gentlemen, science has forged ahead, and nothing that ignorance, petty politics, lack of vision, or hope to continue the old system may try to do can stop the onward march of science. So let not Congress seek to mitigate its shortcomings by attempting to adjust the universe with its own snail-like pace.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE DEVICE FOR WASHING MICROSCOPIC MATERIAL IN RUNNING WATER

SOME special techniques, for example, those for the study of the Golgi apparatus, require a thorough washing of small pieces of tissue for the removal of fixing reagents. This has always been connected with difficulties when more than one group of such objects (usually 3 to 4 millimeters in diameter) were washed in running water at the same time. Any device to this effect should require a minimum of manipulations, prevent air bubbles from coming in contact with the tissue and assure a constant gentle flow of water.

All that is necessary for the method recommended

here are pieces of cheese-cloth, pieces of glass tube, open on both sides and with smooth edges so as not to cut the cloth, and pieces of rubber tube, also open on both sides, which just fit around the glass tubes and around the faucet used for the water current.

First, the faucet above the sink is provided with a long piece of rubber tube. Then a piece of cheese-cloth is put over one end of a glass tube, and this end is connected with the long rubber tube on the faucet. Now the free end of the glass tube is held upward and a gentle flow of water allowed to expel all air bubbles. Then the material and a label is transferred into the glass tube and its other end covered with a piece of cheese-cloth kept in the right position by another piece of rubber tube. This in its turn may be connected with a second glass tube containing another piece of material, and this may be repeated any number of times. The result is that a long series of glass tubes separated by cheese-cloth and rubber tubes and each containing a piece of tissue are connected in a series with the faucet (see Fig. 1).

Intercalation of one or more Y-shaped tubes allows one faucet to serve more than one series of tubes containing material fixed in different reagents. In this way substances washed away from one piece of tissue can never touch material fixed in a different way.

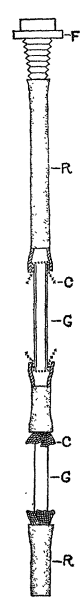

FIG. 1. Semi-diagrammatic drawing, showing the arrangement of the tubes. F, faucet; R, rubber tube; G, glass tube; and C, cheese-cloth.

Abstract: As a simple way of washing more than one piece of tissue at the same time in running water, it is suggested to put them in glass tubes separated by cheese-cloth and connected by rubber tubes to one another and to the faucet.

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ELASTIC FATIGUE AND CREEP OF COILED SPRINGS

THE writer tested springs of two types to obtain information on the rate of increase in length when loads were applied for long times. One type was made of steel piano wire. This type had turns of uniform size. The other type was the ordinary jolly balance spring, made of phosphor bronze and tapered.

During the 365 days that the 50 gm load was on the steel spring there was a gradually subsiding increase in length. This is not surprising, but the writer was surprised at the magnitude of the creep. It was about 3.5 cm (5 per cent. increase in length). At the end of the year the load was removed and replaced after a few weeks. During this rest period the spring became 1.2 cm shorter. Within six days after it was reloaded it had regained most of its loss in elongation (0.8 cm). Then the creep proceeded at a much slower rate, the displacement-time curve soon reaching about the same slope as it had shortly before the load was removed. The load was left about 6 months longer, but the creep was still noticeable at the end of this time. Such a spring would be entirely unsuited as a balance spring for many purposes, such as slow evaporation measurements.

The two phosphor bronze springs showed very little creep. With the load applied for six months the length increases 0.03 cm with one spring and 0.23 cm with the other, the former being about 0.08 per cent. The uncertainty of the readings was about 0.04 per cent.

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SPECIAL ARTICLES

EFFECTS OF ENVIRONMENTAL CONDITIONS ON LONGEVITY

IN line with a recent article in SCIENCE by Dr. C. M. McCay[1] some of the writer's experiments, planned to test the effects of environmental conditions on longevity, may be of interest. For the past year the writer has been working with the effects of certain environmental conditions on the duration of life in Cladocera. The animals used in the experiments to be mentioned here were Cladocerans from the

[1] C. M. McCay, "Is Longevity Compatible with Optimum Growth," SCIENCE, 77, 410, 1933.