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EDITED BY S. C. DICKINSON  
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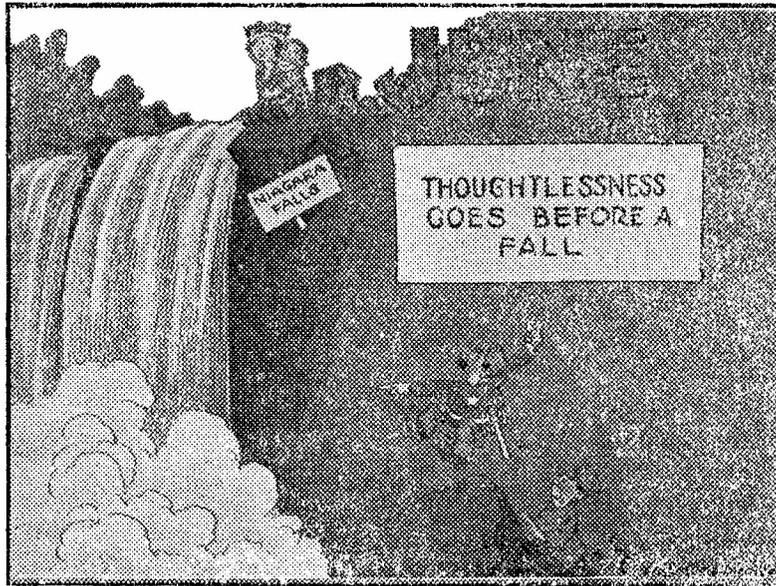
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# State Safety News

*Safety* *Efficiency*

SAFETY SERIES NO. 32

JUNE 1, 1918

## SPARE TIME

Are you looking for *Opportunity*—your chance to get ahead? Look, then, to your *Spare Time*. Coin your “idle” hours into special training. Get ready for the future—*NOW*.

The right use of Spare Time is the key to all Opportunity. *It is Opportunity itself.*

Spare time spent in sheer loafing, or worse than useless dissipation, places a heavy mortgage on ambition and hope. *Wasting your leisure means blasting your future.*

Take the testimony of the Down-and-Outers. Every last man of them will tell you that he spent his yesterdays *Killing Time*.

*Tomorrow's* failures are being recruited from *TIME WASTERS* now.

What is Your story, Mr. Arizona Man and Woman, and what will it be *Tomorrow*?

What are you doing with the eight hours that remains to you every day after work and sleep—the hours that are all *Yours*?

Are you using them so that when Opportunity comes—*Your Big Chance*—you'll be trained and ready? Or, are you just killing *TIME*?

Fifteen minutes each day of regular physical exercise will give you a clear mind and a healthy body—make you fit for either work or recreation.

Thirty minutes of careful study or close application each day for a couple of years will make up for lack of early education, increase the education you already have, develop brain power that you never dreamed of, give you a keen, intelligent mind—make you what the world is everlastingly seeking—a real *THINKER*.

In these days of free libraries, and night schools, and private teachers and special courses of instruction, and every other imaginable facility for education and training, *you can't set up excuses if Opportunity finds you unprepared.*

If you're a *Time Waster*, halt and about face! *It's not too late to begin over.*

Learn to cultivate *Time*—not to kill it. Seek in leisure hours better health, better education, better all-round training. Make every minute count for something worth while.

*Begin a new TIME valuation—NOW.*

## THE "PROTO" BREATHING APPARATUS

The "Proto" breathing apparatus is of the compressed oxygen type, having no air pipes or other connections with the base of operations, thus making its scope of usefulness practically unlimited for work in poisonous gases or atmospheres. The wearer is supplied with perfectly respirable air for at least two hours, continuously and entirely independent of any connection with the outer atmosphere. He breathes the same air over and over again, the carbonic acid being absorbed from it by caustic soda, after each expiration, and the requisite amount of oxygen being restored to it, thus rendering it pure and fit to be inhaled again.

Radical improvements incorporated in the "Proto" give it a decided superiority in all the essential points of safety, comfort, simplicity and highest efficiency.

### NO INJECTORS OR HELMETS

As a distinct advancement over all other breathing apparatus using compressed oxygen, the "Proto" dispenses with the use of injectors and helmets. Injectors are complicated and are always liable to get out of order, the least bit of foreign matter in the orifices choking them and putting them out of action. Where they are used there is also danger, in the event of a leak in certain parts of the apparatus, that the surrounding poisonous atmosphere may be drawn into the breathing circuit by the negative pressure set up. Indeed several fatal accidents have occurred from this cause. The "Proto" is the only apparatus which is entirely under positive pressure.

Helmets in connection with self-contained breathing apparatus are objectionable and dangerous, not only because of the great difficulty of obtaining a perfectly airtight joint round the face, but also owing to their large dead-space, allowing excessive accumulations of carbonic acid.

### FLEXIBLE BREATHING BAG

Another distinctive feature of the "Proto" is the use of a flexible breathing bag, instead of the rigid cartridge or soda chamber system. Soda chambers on the back form large projections where they are most likely to be damaged or catch on obstructions in a low road or mine seam, or when creeping through small apertures. The "Proto" breathing bag containing the soda compartments is worn in front and is so constructed that external pressure upon it does not in any way

impede the wearer's breathing. A man may, in fact, lie quite flat upon the bag, and still be able to breathe freely, or the bag may be swung ahead of the wearer. The advantages of this when squeezing through small apertures will be apparent.

#### CAUSTIC SODA THE ABSORBENT

Caustic soda is used instead of potash as an absorbent, the advantage being that the former remains practically hard, dissolving away from the surface only, whereas potash when exposed to moisture becomes a pasty clay-like mass which greatly reduces the area of the absorptive surface. Another advantage is that caustic soda for the "Proto" apparatus can be obtained readily in any locality. No special cartridges are necessary nor any other specially prepared forms of soda which can only be purchased from the makers of the apparatus often at considerable inconvenience and always at increased expense. We ourselves formerly placed granulated soda on perforated trays in chambers carried on the back, but we discarded this plan in favor of our specially constructed flexible breathing bag in which the soda is now carried. In the rigid cartridge or chamber system we found that the soda was practically stationary, with the result that after a short time its surface became carbonated and lost much of its power of absorbing the products of respiration. In our bag system, however, the soda is so placed that the movement of the wearer when walking or at work automatically rubs off the carbonated surface of the soda, thus constantly exposing a fresh surface for the absorption of carbonic acid. The bag is very easily emptied after use, and a fresh supply of soda can be placed in it immediately, making the apparatus ready for use again in two or three minutes. A large percentage of the caustic soda sticks can be reclaimed to be used again, thus materially reducing the cost of maintenance and charging.

#### DUAL CONTROL OF THE OXYGEN

The "Proto" apparatus is designed to maintain a constant supply of from  $1\frac{1}{2}$  to 2 liters of oxygen in the breathing bag through a reducing valve. An emergency valve is provided in case the reducing valve should fail to operate, thus enabling the wearer to supply the breathing bag with oxygen direct from the cylinders. This dual control of the oxygen supply is distinctively a "Proto" feature, the importance of which will be readily appreciated.

The pressure gauge, instead of being fixed on the oxygen cylinders,

out of sight and reach of the wearer, is arranged to be carried in front on the breathing bag, where it is easy of access and may be consulted at any time as readily as a watch.

#### PERFECT FREEDOM OF MOVEMENT

The mouthpiece allows the wearer free movement of the head, being connected to the breathing bay by strong flexible corrugated tubes. The inhaling and exhaling valves are of mica, simple in design and do not stick or get out of order. The dead space between the wearer's mouth and the inlet of the bag is reduced to a minimum.

The mouthpiece is attached to a small rubber band fitting comfortably around the outside of the mouth and buckled to a skull cap which carries the weight and prevents the mouthpiece being jerked out. The rubber parts of the mouthpiece which come in contact with the gums are soft and comfortable—a point of no little importance. The noseclip is made to fit comfortably any nose and cannot slip off. Mica goggles are supplied to protect the eyes. In place of mouthpiece and noseclip, a half mask, covering nose and mouth may be worn if preferred. A full mask, completely covering nose, mouth and eyes, can also be supplied.

#### SUBSTANTIAL SIMPLICITY

Extreme simplicity and complete absence of complicating parts characterize the "Proto" apparatus. It has fewer connections and consequently fewer joints to keep tight than any other self-contained breathing apparatus.

It is light, compact and flexible. Notwithstanding the fact that the oxygen cylinders are extremely strong, the total weight when fully charged is only 32 pounds. Its small number of rigid joints and connections make it extremely flexible, enabling the wearer to hold his arms in the natural position and use them with every freedom without undue exertion.

Its flexibility, coupled with its great compactness, enables a man to get along in comfort in a low mine road or seam, an advantage possessed by no other apparatus designed for serious work. A man equipped with the "Proto" apparatus can easily crawl through an opening 15 inches square.

#### SAFETY AND EFFICIENCY

These elements of simplicity, lightness, flexibility, compactness, etc.,

assure the maximum of safety, efficiency, and comfort under the widest range of service conditions. Its parts being so disposed as to balance its weight perfectly and cause no discomfort to the wearer, it can be worn by a man stripped to the waist, allowing free evaporation of perspiration, so that the danger of heat stroke from the hot air of mines is minimized.

Heavy work can be done with the "Proto" with less fatigue than with any other apparatus, the carbonic acid in the breathing bag at the end of the period of exertion being an almost negligible quantity, while the percentage of oxygen is very high.

It requires absolutely the minimum of attention, and the small number of parts subject to wear and tear make the maintenance cost very low.

It is always ready for immediate use in case of emergency and it can be kept in readiness for an indefinite time without deterioration of apparatus or soda, and without loss of oxygen.

#### LITTLE TRAINING NECESSARY

Less training is needed with the "Proto" apparatus than with any other yet produced. Five minutes suffice for becoming conversant with the whole apparatus and its working, and a little practice makes the wearer proficient in its use.

A man can put the apparatus on himself without assistance and be ready for work in one minute. All that the wearer has to do is to put the equipment over his shoulders, fasten the belt and take the plug out of the mouthpiece. The moment the mouthpiece is put into the mouth, or the mask adjusted, the valve controlling the oxygen in the cylinders is opened. The necessary supply of oxygen will then flow into the bag and breathing will go on comfortably.

The importance of the foregoing points of superiority cannot be overestimated, especially in view of the fact that apparatus of this class is mainly used by unskilled men.

#### A PERFECTED APPARATUS

The "Proto" is the result of 38 years' experience. Observations of the apparatus in actual use under the most trying conditions, with exhaustive experiments of most careful sort, have led to elimination of all undesirable features and retention of only the best, so that by constant improvement the "Proto" (Fluess-Davis patents) has been

developed to a state of high efficiency. For the most effective work it is the safest, simplest and most comfortable self-contained breathing apparatus yet produced.

*Safety prejudices are dark corners in the mind.*

### CAUTION

Do not fail to give small wounds immediate and proper attention, especially during the warm weather, at which time there is a greater possibility of infection, due to perspiration getting into the wound or to the fact that germs are more active and virulent during warm weather.

*It is well to observe Safety First, even when picking mushrooms.*

### THE NAIL HAZARD

A little nail, like a little knowledge, is often a dangerous thing. A few nails, driven through a couple of boards, may be entirely harmless; but when the boards are torn apart the points of the nails are often left projecting from one of them, and here's where the dangerous element enters. If the boards are cast aside, they almost always fall, with the usual perversity of inanimate things, so that the points of the nails stick upward.

Projecting nails are met with everywhere. They cause many injuries, and the wonder is that they do not cause more. Boxes and barrels that have been hastily opened are frequently left with the covers only partly removed and the nails that held the covers are seldom drawn out or hammered down. The nail hazard is especially marked in building operations, where scaffolds and other similar temporary structures are used. After these have served their purpose, the materials of which they are built are thrown carelessly aside without giving attention to the projecting nails that they contain. In industrial plants of all kinds the nail hazard is also serious, and some manufacturing concerns report that fully seven per cent. of their accidents are caused by nails. The danger from nails is therefore important, and attention should be given to the best means of eliminating it.

The soundest and best thing to do is to educate the men who are responsible for leaving the nails in the boards. Teach them the im-

portance, from a safety standpoint, of pulling the nails out, or bending them over and hammering their points in, in a proper manner. This is no great task, and if all the nails are pulled out or properly bent over, the danger is removed. It is safest, of course, to remove the nails entirely, and the next best thing is to hammer them in; but if they are bent over and hammered down, the work should be done in the right way. A nail bent so that its point remains a quarter of an inch or an eighth of an inch above the level of the board is still dangerous, because it is likely to tear the flesh of an employe who has occasion to handle the board or other object from which the nail projects, or who may brush against it in passing. A nail-point thus treated is also likely to catch in the sole of the shoe and cause a serious injury.

*Educate, organize, supervise and conquer carelessness.*

## EFFICIENCY

After all is said and done efficiency has its basis in personal health.

Institutional efficiency, or that of a large employing organization, has its basis in the individual health of those comprising the organization.

We will venture the statement that if the members of a large business organization could be educated to reduce their eating one-half that the efficiency of the institution would be increased at least twenty-five per cent.

And this strictly includes the president, and the general manager and the heads of the institution.

There are two syndicate departments dealing with personal health appearing in a number of big newspapers.

One of these is conducted by Dr. R. H. Bishop, Cleveland, and the other by Dr. W. A. Evans, Ann Arbor, Michigan.

The basis of both these departments is common sense—so plain and common that the family doctor would not get a cent for the same advice.

These newspaper departments are constructive—they are preventative of ill-health, and people read them who would not go to a physician for the simple, common-sense knowledge they contain.

People do not go to a physician unless they are sick—after the damage has been done.

These departments are being read and discussed by every class—the clerk and the railroad president, for health has a universal appeal.

The whole basis of the writings of both Dr. Evans and Dr. Bishop is that most people eat too much.

Most people will agree with this, but it takes persistency, a constant hammering away with a health department in a newspaper, very much in the nature of advertising, to get people to act upon the knowledge.

There are all sorts of elaborate systems and cults in eating, the question of diets having been made as complex as chess, but in reality it all resolves itself into eating what agrees with us, but in eating less of it.

In other words, if you are in the habit of eating two eggs in the morning, why only eat one.

Most people confuse hunger with emptiness.

It is not what we eat, but what we assimilate that nourishes us.

Elimination is as important as nourishment.

It is not the fault of a meat diet, but the fact that we eat too much of all concentrated foods—such as nuts, beans, cheese, milk and many of those items which might be included in the vegetarian diet.

We should spoil our appetite for concentrated foods by eating bulk foods such as fibrous fruits and vegetables, greens, cabbage, apples and the like—items of large bulk, but low in food value. Such foods aid in the elimination process.

Louis Cornaro, a Venetian centenarian, first recorded this common sense doctrine more than 400 years ago in a book, since translated, under the title of “The Art of Living Long.”

This work is simply a record of his experience in following the doctrine of light eating and his experiments upon himself. The common sense of it is indicated by the fact that after only eating 16 ounces of food a day for a long period, he found that when he partook of 20 ounces it made him sick. So he returned to 16 ounces.

*There are many roads to success; how many of them have you tried?*

*God's best gift to us is not things, but opportunities.*

## HOW TO KILL A SAFETY ORGANIZATION

1. Don't come.
2. If you do come, come late.
3. If too wet or too dry, too hot or too cold, don't think of coming.
4. Kick if you are not appointed on a committee, and if you are appointed, never attend a committee meeting.
5. Don't have anything to say when you are called upon.
6. If you do attend a meeting, find fault with the proceedings and work done by other members.
7. Never bring a friend whom you think might be benefitted by the meetings.
8. Don't do anything more than you can possibly help to further the organization's interests; then when a few take off their coats and do things, howl that the organization is run by a clique.

*You cannot get up in the world by merely rising in your own estimation.*

## FIRST AID TO SOLDIERS

A method introduced by Sir Rutherford Morrison consists in the free mechanical exposure of all parts of the wound, scraping away all the granulated tissue and the removal of all dead and seriously injured parts and all fragments of bone; then the wound is dried with gauze and a very thin smear of what Sir Rutherford calls "bipp"—bismuth, iodoform and petrolatum. It is stitched up without drainage, immobilized and left for ten days. These patients did amazingly well, said Sir Berkeley, but he had found they do equally well when he "bipps them without bipp." He told his hearers that it did not make much difference what was done to wounds provided there was a free mechanical cleansing and a careful, scrupulous, rigid technique.

Sir Berkeley did not condemn any of these antiseptics but insisted that if you ruthlessly cut away all dead and contaminated tissue a wound would heal by first intention. The essentials were free exposure of all parts of the wound, thorough cleansing, and rigid immobilization.

Dr. George W. Crile, of Cleveland, now major in the U. S. Medical Corps, said that his experience at the front had taught him that

practically all of his preconceptions concerning surgery had been wrong. What had most astonished him was that mud could wound. A bullet striking the richly fertilized soil of Belgium or France would throw up a splash of mud with such tremendous velocity that it would penetrate the skin, force a vast amount of mud into the hole, and cause a very nasty wound that sometimes proved fatal.

Dr. Crile confessed that he had doubted the efficacy of "bipp" and had been astonished to see how well wounds healed under it. But he had found also that they healed well without it.

Dr. Crile made the point that the soldiers at the front were so vigorous and well trained that they resisted infections far better than civilians would. He described such operations as opening wounds in the knee joint, washing them out with salt solution and closing them without drainage—a procedure that no surgeon would think of in civil life—and 70 per cent. of such operations were successful. They open men's chests widely, take out foreign bodies and remove the blood, close up the wounds tight without drainage and nearly all of them heal without any infection.

*Greatness is never thrust upon a man who leads an aimless life.*

## LOSING JOBS

Why do men lose jobs?

"Because they're shiftless, and inefficient," most persons will reply. But modern inquiry goes deeper than that, and asks why they are shiftless and inefficient. The subject is treated in a novel way by Dr. Adler, a Boston specialist in mental diseases, in an article printed in the magazine, *Mental Hygiene*. He carefully analyzed 100 men who were chronically unemployed, with these results:

There are three main classes, he says, of men who can't hold their jobs. Members of the largest class, 43 per cent of all, have what he calls "paranoid personalities." A paranoid person, it appears, isn't exactly a paranoiac—he isn't insane—but he has certain definite mental defects, related to paranoia. He is egotistic, self-centered, loving the limelight. He may be a "reformer." He is often willing to do any amount of work, regardless of compensation, if he can only run things and get the credit. But he offends employers and associates by his aggressiveness. And if thwarted, he becomes surly and sus-

picious. Sooner or later he either neglects his work or becomes so unpopular that he is discharged. He lasts, on an average, about 20 months.

Then come the men with "inadequate personalities," constituting about 35 per cent of all. They don't arouse the antagonism of employers and fellow-workmen, they're not positive enough for that. They merely fail to impress themselves on their jobs. They lack energy, application and intelligence. They are weak, futile persons. They are fired because they're not worth their wages.

Nearly all the rest of the unemployables fall into the "emotionally unstable" class. They have energy and brains. They can do their work and get along with their bosses and their fellows ordinarily. But they have a fatal tendency to explode. They are subject to occasional exhibitions of violent temper and other impulsive outbreaks. Thus they are not wholly dependable.

These are obviously the most employable of the "unemployables." With understanding and sympathy, they get along very well. But few employers want the incompetents of the middle class, and fewer still want the bumptious paranoids. With those two divisions little can be done.

The classification ought to prove useful to observing employers in sizing up their men, and to employees who are interested in analyzing their associates.

*Life is a mirror—try smiling at it.*

#### LEST YE FORGET

Education and interest are the kernel of the safety movement.

With these thoroughly applied there can be nothing but successful maturity.

If you see a fellow employee do anything contrary to safety, find out whether or not he knows better.

If he does not, educate him.

If he does, interest him.