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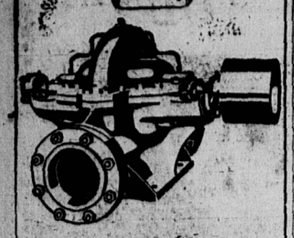

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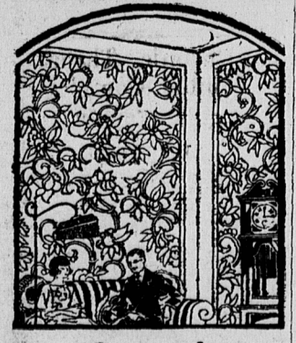

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TUESDAY, FEBRUARY 28, 1928

SUNSPOTS

ELSEWHERE in this issue will be found an article on Sunspots written for The Guardian by a valued contributor. We direct special attention to it for reasons which will be obvious to the thoughtful reader. Until comparatively recent times, science did not take sunspots seriously as in any way affecting the earth's atmosphere. The data given in this article, with convincing proof as to their accuracy, will convince the reader that the hitherto disregarded freckles on the sun's face are of tremendous importance to the dwellers on this planet. Perhaps the great lesson conveyed in this exceedingly interesting article is the steadily increasing rapidity with which modern science is uncovering one by one Nature's wonderful secrets. Also the writer, without saying so, shows what pleasure may be derived from the faculty of keen observation, which he certainly possesses. Under our feet, around us and above us are immeasurable sources of enjoyment and information if only we train ourselves to see them. We trust our young readers will learn this lesson from the article referred to. We strongly recommend that the article be cut out and preserved for future reference. We have much pleasure in informing our readers that there shall be further contributions from the same well-informed pen.

OLD AGE PENSIONS

ANOTHER of the chickens of recent federal and provincial elections is coming home to roost, and the bird is not nearly as attractive as when in the egg. Liberal and Progressive provincial governments have been pressed to adopt the legislation passed at Ottawa just to show there was something in it. British Columbia has adopted it and Manitoba is thinking the thing over at the present session of their legislature. It has been discovered that by eliminating all who can get along without a pension, the scheme will cost the province at least half a million dollars. The province has not this much to show at present and a proposition is on foot to increase the property tax to meet it. This has aroused a storm of criticism which has held up the traffic in the legislature. How it will finally end remains to be seen.

The province of Alberta is also thinking it over, but the opinion prevails there that the federal government should pay at least 75 per cent. of the pension. Here also is a hitch, for the federal government has not, so far, evinced any disposition to be generous. At the opening of the New Brunswick legislature a few days ago the Speech from the Throne referred to the desirability of doing something in this direction, but the opinion there evidently is that the Dominion Government should do it or at least most of it. The question has not yet reached the floor of the House.

In Ontario a survey is about to be made to ascertain as nearly as possible what the scheme would cost the province and how the revenue can be raised to meet it. Quebec will not adopt the federal scheme.

What is the Saunders Government going to do about it? A pension to everybody of 70 years old and upwards was definitely promised during the last provincial election campaign. That it would cost the province anything or cause the taxpayers any inconvenience was never even hinted at. It was to be a gratuity to the worthy men and women over 70 years of age who had borne the burden and heat of the day and are facing their declining years with or without the wherewithal. This was to be a free gift from the Liberal federal and provincial governments, and the Conservatives were accordingly held up to anathema for their callous neglect of the aged!

Now we have a federal Pensions Act. We have the promise of Mr. (now Premier) Saunders, to carry it into effect. What are they going to do about it?

RESEARCH.

THE National Research Council of Canada has during the past ten years or so done work of invaluable service to Canada. The Government is to be commended on its recent decision to increase its grants to this council to enable it to carry on its work more efficiently than formerly. The Government has also decided to build and equip a central laboratory at Ottawa for the purpose of carrying on industrial research. This also is commendable provided the conduct of the work and the proposed experiments are left in the hands of the National Research Council to which the work properly belongs. Should the new laboratory be made a political machine for the purpose of providing jobs for "deserving democrats" the only results that can be expected will be jobs from which Canada will receive no benefit.

The National Research Council is composed of real scientists who are in it for sheer love of science, perhaps the most interesting work that men and women can engage in. And there is a limitless field open for them right here in Canada. The University of Saskatchewan has for some time been studying the wheat rust problem in that and the neighboring provinces and their research has already saved millions of dollars to the wheat growers. The discovery of the cause of and the means of entirly preventing rust in grain would alone pay for all that the Government could expend on research. It would mean many millions of dollars. There are also our mineral deposits, known and unknown. There are our salt deposits with their immeasurable possibilities in by-products which may be many times more valuable than the direct product. There are our coal beds, the ultimate contents of which are yet to be revealed. There are the immeasurable plant diseases and pests which are costing Canada yearly more than we can dream of. Science and research alone will solve these and other problems. What we are losing yearly through pests, diseases and ignorance of the things around us will never be known. Gradually, however, our scientists are wading into the ocean of the unknown and gathering pebbles of infinite value. This limitless ocean is practically all before them. In the last hundred years they have skirted only its edges. The next hundred years will uncover many things of value of which nothing is known today.

Whatever our Governments, federal or provincial, expend on real scientific research, few will find fault with, and we may confidently look for profitable returns from the million or millions to be expended on the industrial research plant about to be erected in Ottawa.

EDITORIAL NOTES.

There are excellent sleigh roads throughout the country and business is responding accordingly. The city streets are still good for automobiles.

A steady stream of potatoes has been going out from the province practically without interruption during the winter. This is a vastly different condition from the days when this product had to be shipped before the first of December.

Notes by the Way

THE mail from the mainland failed to read this city Saturday night, and, unfortunately the aeroplane from Moncton was also off duty on Saturday. As at best we only get one mail a day from the outside world, and that delayed at Sackville, or the Capes, or elsewhere, this interprovincial mail service still comes several degrees short of being ideal. And as yet there is no official intimation in the Ottawa estimates or otherwise that either the Government or the C.N.R. intend to make provision for the building of another Car Ferry steamer.

It will take time to build such an ice-breaker as is required, perhaps a year or two after the money is voted and a contract made with the builders. In the meantime a sinister hint has got afloat that the weekly airplane mail service may be made the pretext for further delay in making a decision as to providing the second Ferry Boat. An equal uncertainty exists in the public mind as to the date when the standardization of the Railway line in the eastern section of the province is to be completed. This work has already been most unreasonably delayed.

The same is equally and painfully true of the promised appointment of a Minister to represent this province in the Federal Cabinet. Collectively in these, as in other matters, Prince Edward Island has been and is being shabbily treated. The fact that three out of four of the representatives of this Province are supporters of the King Government makes the delays and neglects to which our people are being subjected more conspicuous and unaccountable than it otherwise would be. But Premier King knows his Island supporters and no doubt rates them as the most docile and subservient of any in his camp.

It was in 1920 that the 18th Amendment to the Constitution of the United States, forbidding the "manufacture, sale or transportation of intoxicating liquors" was adopted, and in the same year, the 19th Amendment giving women the right to vote. Thus the enfranchisement of women closely followed upon the dry addition to the Constitution. It was expected that the women would support constitutional prohibition by a very large majority. It has since transpired that many women, like their husbands and brothers, are quite as much opposed to prohibition as are their nearest relatives on the masculine side of their households. "The men passed it," they say. "We had no votes when the 18th Amendment was prepared and put through."

The Christian Science Monitor is one of the ablest and influential journals supporting prohibition in the United States. It became convinced that the average American youth had not been given the educational background required for a respectful observance of the prohibition statutes. This is no doubt true, and a special effort is being made to educate these young persons to a proper understanding of the situation. "A Fair Chance For Prohibition," is called for. "Good sportsmanship requires," says The Monitor, "that such a measure as the 18th Amendment be regarded neither resentfully nor contemptuously, but as an experiment to be honestly tried and discarded only when it has clearly failed after that honest trial."

The Monitor discusses, and condemns three out of "four possible courses of action open to those who are not in favor of prohibition as a national policy." These are: "The repeal of the 18th Amendment, or modification of it to permit Government sale of liquors; modification of the Volstead Law to permit wines and beers; letting the Constitutional Amendment and the Volstead Law stand, but making no attempt to enforce them where they are unpopular; and finally, acceptance of and obedience to the prohibition laws whether or not they are liked."

In all these pleas to give prohibition a fair trial in the United States and to educate the youth there to respect the law of the land, there is a notable absence of any silly pretence such as appears to be current in Alliance circles here, that all the saints are on the side of prohibition and all the sinners opposed to it. And we fail to find any expression of sincere conviction that the 18th Amendment is established as permanent, or secure against repeal. The leading journals supporting it evidently regard prohibition as still an "experiment," whose future is doubtful.

It is extremely cold weather that the greatest danger of fatal fires occurs. In hotels and dwellings alike, the buildings are closely shut up and fires kept up day and night. It is often at such times, when the inmates are all asleep that from want of attention furnaces or pipes become overheated, woodwork is set aflame and perchance the way of escape is shut off, as occurred at Mulgrave, N.S., on Sunday morning. How true it is that in the household "fire is a good servant but a cruel master." Constant vigilance is the price of safety in the winter season.

That Body of Yours

By James W. Barton, M.D.

GIVING THE LUNGS AN AIR BATH

One of the suggestions in a recent article on tuberculosis was the giving of the lungs an "air bath."

By means of air baths the lungs are bathed in air.

Now, as a matter of fact your lungs are always being bathed in air, because the lungs are always in contact with the air; the lungs as I mentioned once before, are really outside your body proper.

If you could think for a moment of the lungs as a large paper bag which you have blown up, and then pushed down the throat into the chest cavity, what was the outside of the bag exposed to the air is now the lining of, or the inside of, the bag.

Similarly, the inside or lining of the lungs is thus really in contact with the outside air, or in other words is outside the body.

This lining has very small blood vessels all about it, so that between the outside fresh air and the blood, the walls are so thin that gases can pass right through them, just as two different gases will pass through an animal membrane in a jar. Blood after being all round the body is poor in oxygen and rich in carbon dioxide, whereas fresh air is rich in oxygen and poor in carbon dioxide. Therefore, due to differences in pressure an exchange is made through this lining. And so in cases of tuberculosis where the healing of damaged tissue and growth of new tissue is desired, the use of exercise to increase the flow of air into the chest is being advocated.

The exercise makes the patient breathe deeper and more often, thus not only stimulating the lungs, but the heart and other organs also. The exercises are to be taken in the open air when at all possible, or otherwise in a well ventilated room.

The only exception is where the patient has a temperature or where there is danger from hemorrhage or bleeding.

Now this is not really a new suggestion because it was discovered some years ago that simply putting weight on a tuberculosis patient and getting his temperature to normal, was not sufficient to enable him to return to his home and occupation.

By the use of exercise, starting at fifteen minutes daily, and increasing up to five hours, the patient was enabled to return to his work and remain at it.

However, using the expression "giving the lungs an air bath" helps you to remember that as your lungs are always getting an air bath, that the air in which they bathe should be pure, and have the sunlight upon it. It should mean more of the outdoors for all of us.

DAILY LESSONS IN ENGLISH

By W. L. Gordon

WORDS OFTEN MISUSED. Do not say "we must investigate the matter right away." Say "at once" or "instantly."

OFTEN MISPRONOUNCED: lullaby; y as in "by," not as i in "it," accent first syllable.

OFTEN MISSPELLED: height; not heighth.

SYNONYMS: rob, steal, thieve, pilfer, purloin, plunder, despoil, loot.

WORD STUDY: "Use a word three times and it is yours." Let us increase our vocabulary by mastering one word each day. Today's word: INDISPUTABLE; too evident to admit of dispute. "I want to give you some indisputable evidence."

The Land We Love

By Frank Yeigh

CITY OF BRANTFORD.

Q.—Where did Brantford get its name?

A.—The site of Brant's ford, from which the City of Brantford derived its name, is to be officially marked. The ford had been located on the West Brantford side as existing at a vacant and unnumbered lot on East Gilkison street, owned by the City, and situated between two houses, 90 and 94.

Modern Etiquette

By ROBERTA LEE

Q.—What kind of gloves does a man wear with full dress?

A.—White, glazed kid.

Q.—How should a member of the Catholic clergy be addressed?

A.—"Father."

Q.—What should a hostess generally discuss with her guests at the first dinner of a week-end party?

A.—She should discuss plans for the week-end activities.

Sunspots

(Specially Written for the Guardian by a Special Correspondent.)

It is now a quarter of a century since I saw my first "Sunspots", and having a penchant for the unusual in nature, I was led to gather information, which is here set out in the hope that it will help others in the quest of knowledge. Using a fogged photographic negative, in lieu of smoked glass, to moderate the light and cut off the days which otherwise would be injurious to the sight, I saw an irregular group of dark "maculae," or spots, strung across the sun's disc.

The earliest authentic account of these maculae, which I have met with, is that of the Dutch physician, John Fabricius, who detected by their means, in 1611, the period of the sun's axial rotation: this he gave as 26 or 27 days. Doubtless, they were observed by the Astrologers of ancient nations, but their rational study belongs to modern times.

Sunspot Years

A list of the years when Solar maculae were most prevalent—their maxima periods—is given by Fritz and Wolf in the Encyclopaedia Britannica, edition IX, (Article "Aurora"), as 1706, 1718, 1728, 1739, 1750, 1761, 1770, 1779, 1788, 1804, 1817, 1830, 1837, 1848, 1860 and 1871. By the courtesy of Dr. Edison Pettit, Mount Allison Observatory, California, I am enabled to bring it to date: 1884, 1894, 1906, 1917, and 1927; thus covering a period of 221 years. From these dates it will be seen that the maxima range from 7 to 16 years apart: modern astronomers agree that their mean cyclic periodicity is about 11 and one-half years.

These tables are most valuable to the student who will find in the course of his general reading, records of irregularities of weather and other phenomena traceable to the influence of these maxima.

It must not be supposed that these peak years are sudden and isolated. Between the years 1800 and 1835, from a minimum year, the spots increased in frequency and size to their culmination whence they just as gradually decreased to the next minimum half way in the cycle, their graphs presenting a succession of equilateral triangles. From some unknown cause they suddenly mounted to their maximum in 1837 in two years, and fell gradually as before: this they did till 1871, when the table ends. Their relative frequency and size were nearly triple those of the 1800 groups and their graphs were almost scalene right-angled triangles.

Thus their effects will be strongly traceable both in the year before, and in the year after, the maximum. The years 1816, and 1918 to which I shall refer later, exemplify this.

Supplementary Cicles and their Effect on the Weather.

Superimposed on these eleven cycles, Dr. DeLury, of the Dominion Observatory, finds indications of what may be called supplementary cycles of 60, and 260 years, and presumably if these happen to coincide with the eleven year maximum they will intensify all its effects, while if they are interjected, they will prolong them.

Furthermore, Father Gabriel, the French astronomer-priest, finds traces of a 186 year period, and in a paper read before the Academy of Science he predicted that the winter of 1925-6 would be as severe as those of 1553 and 1740: and, as we know, he was right. The oscillations of the barometer in January and February were extraordinary: many auraras and sunspots were visible, and the storms here were many and violent so much so, that between January 15th and May 12, there were 20 days in which the mail failed to reach us on the North of the Island. In Europe, heavy snowstorms were succeeded by heavier rains, and at least 1000 lives were lost by inundation of the Central European plains.

These super-cycles may be the cause of the irregularities in the Fritz and Wolf tables as given above:

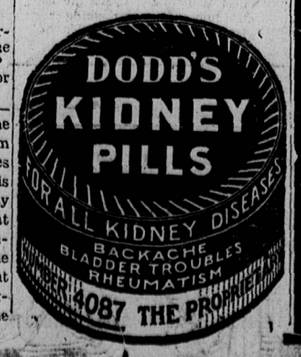
Sunspots Increase Heat of Sun

At these maxima two facts stand out: the sun's heat is sensibly increased, and the ultra violet rays ("growth rays") are produced in greater abundance. We may not be always cognizant of the former, for as Dr. DeLury points out, in a remarkably instructive pamphlet, ("sunspots and the weather"; University of Toronto Press, 1925), the ultra-violet rays ionize the atmosphere and produce (in coastal districts) much rain. Yet, when the sky is clear the heat is apparent, and my readers may recollect the fine weather in the late winter of 1927, when the spruce and evergreens were so scorched, that the woods were brown instead of green, in the spring.

What May Occur In Sunspot Years

The pamphlet to which I have referred, gives the following as like-

(Continued on page 6)



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