

RADIO DEVELOPMENT

BY LIEUT JOHN R. IRWIN
U S AIR SERVICE (RESERVE)

THE LEAD PLATE STORAGE BATTERY.

In the lead cell type of battery the plates are made of lead in the form of a grid. Each plate contains many tiny cells, like honey-comb, often called by the name "grid." Into these honeycombed cells is heavily pressed or forced, a mixture of red lead, litharge and sulphuric acid. When two plates thus prepared are immersed in an electrolyte, consisting of a 20 per cent sulphuric acid solution, and an electric current passes between them hydrogen will accumulate on the plate from which the current leaves the cell, thus in one plate the active material is reduced to a spongy lead and in the other the same material is being changed to lead peroxide, as it takes up the oxygen. The cell now contains a lead peroxide plate, called the positive (+) and a spongy lead

plate called the negative (-). After the charge is cut off, assuming that it is fully charged, if the cell is in a circuit a current will flow in the opposite direction to that by which it was charged. The cell upon completion of the full charge should show a voltage on open circuit of approximately 2.2 volts; this however, will drop quickly to about 2 volts. As the battery is discharged the voltage will gradually fall. The discharge should never be carried below 1.75 volts. The container of a lead cell must be of a material sulphuric acid will not attack and is usually of either glass or hard rubber, depending upon whether it is of the portable or stationary type. The negative plates appear gray and the positive reddish in color. (Continued in next issue.)

APPARATUS AND DEVICES

By RALPH BROWN, RADIO ENGINEER

ROTARY LEVER SWITCHES.

Almost every radio experimenter makes more or less of his own apparatus, at least he assembles a large part of it. If his finished set is to appear right and work smoothly, the parts entering into its construction must be of a high degree of accuracy and uniformity.

A switch would appear at first glance to be a comparatively small item of consideration, but a poor switch or irregular contacts may ruin an otherwise well built set.

The illustration shows a switch that is designed for panel mounting, and is so constructed that results and permanent efficiency are assured. As illustrated, the coil spring tension insures sufficient flexibility for smooth operation.



When assembling the coil spring should be drawn as tight as possible; this places the bearing strain on the face of the panel and not on the shaft.

Will readers interested in these radio articles kindly communicate with the editor by mail?

We have much to say for and against immunity, yet it is the only medium through which we are to work out the real life within.

When a man is no longer anxious to do better than well, he is done for.

Great wants often proceed from great wealth and they are unfruitful children, for they sink wealth down to poverty.

Adversity leads the wise to prosper.

Men's hearts ought not to be set against one another but with each other, and all against the evil thing only.

The blessings of immunity, safeguard, liberty and integrity which we enjoy deserve the thanksgiving of a whole life.



Will Your Boy Be Educated?

Of course he will, because you want to see him grow up to be a "real" man. When he gets out into the world and makes his mark, what pleasure and satisfaction it will bring to you!

But there is just one consideration—suppose you do not live until he is fitted for his life's work. This thought has escaped many a man. It is the chief reason ninety per cent. of children never complete their High School course.

The matter can easily be arranged—an education guaranteed to your children—through life insurance.

It is one of the great pleasures of life insurance representatives to be able to advise fathers and mothers how to provide for the education of their children, who will afterwards pay honor to their parents, holding them in high regard for this chance in life.

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A MILITANT CLERIC.

Strenuous Work to Make Schools More Efficient.

It is a fine thing to be a radical Conservative. This is merely another way of saying that the Rev. "Bob" Dickie, one time "Varsity undergrad," presently pastor of Knox Crescent Church, Montreal, has succeeded better than most of us in filling himself out and building himself up to the full measure of a man. There is nothing of the "cloister's stillness and seclusion" about Rev. Robert William Dickie, B.A., D.D.

He was born at Hyde Park, Ont., on January 25, 1873, the son of George Dickie and Alice McDonald Dickie, daughter of a famous Western Ontario Presbyterian divine, the Rev. A. D. McDonald of Seafort. He imbibed the elements of his education at the "Little Red Schoolhouse," London Collegiate and "Varsity." By '94 he had got about all that Toronto had to give him and wandered over to Edinburgh—that home of Presbyterian triumph—where he put a brilliant polish on the educational structure he had erected.

In 1898 he was back in Canada again and had started on his life's work as minister of St. Andrew's Church, Orangeville. In 1903 he turns up at Brandon—which in those days was considerably less of a place than it is now, Brandon held him for five years, but the call came to him and by 1909 he was pastoring Knox Church, Montreal, one of the biggest Presbyterian churches in Eastern Canada, and has been in charge there ever since.

The work of providing first-class education for the Protestant English-speaking minority in Montreal is the one job which has taken Dr. Dickie's time outside of his strenuous pastoral activities. In 1918 he was made president of the Protestant Board of School Commissioners and cleared away many cobwebs. He believes in happy schools, where the teachers have good working conditions and the children find their school a community center and a thing of beauty. Rumor has it that on the threshold of his ministerial career, "Bob" Dickie resolved never to wear a gown, never to read again his Hebrew Bible and never to give up family prayers. But some ladies gave him a beautiful gown and he has to wear it. The other resolutions fared better.

The Duke Was Floored.

Like all public men who have had military training, the Duke of Connaught has a keen eye for medals and decorations. He can tell at a glance what every bit of ribbon means, and usually has some comment to make on campaigns of other days when he meets an old soldier proudly decked out for formal inspection.

On one occasion, however, the duke was at first puzzled, then hopelessly at a loss to identify a certain medal. It happened when as Governor-General of Canada, he paid his vice-regal visit to Western Canada, this including a call at Prince Rupert, then only emerging from the boom state.

Included among the ex-service men drawn up for inspection was a grizzled stalwart who sported a solitary medal on his manly chest. There was no ribbon, no bar, no clasp. The writing could be distinguished only by close scrutiny.

The Governor-General happened to halt in front of this man, glanced curiously at the bit of metal, and said:

"Ah, you served in the—er—"

A slight pause for the wearer to supply the desired information, but the stalwart was much too flustered to speak. He just gulped.

Under ordinary circumstances the duke would have passed on, but he had permitted himself to become intrigued by that medal, and he would not be satisfied until he had it identified.

"May I ask in what campaign you received that medal?" he finally inquired.

"Cer-certainly, my lord duke, certainly," came the blurted reply.

Another pause, and then the duke put the direct question.

"In what part of the Empire did you win this?"

"In New Westminster, my lord duke," came the unexpected answer.

"In New Westminster? I don't recall any recent fighting in British Columbia."

"Oh, this isn't a fighting medal. I won this in a singing contest!"

Our Hardwood.

With a shortage of hard coal threatened throughout Ontario, many persons are turning to wood as a source of fuel. The question of a more general utilization of our hardwood resources for this purpose is discussed in the following paragraph from the Canadian Forestry Association:

Canada has a superabundance of hardwoods, but the bulk of the supply grows in districts not accessible by railways or roads, and hardwood cannot profitably be transported by water owing to the heavy percentage of what is called "shrinkage." The cutting and marketing of hardwood fuel has seldom been a satisfactory or profitable business except for the farmer owning a wood lot near his market. So long as anthracite can be secured it seems improbable that our hardwood areas will be largely utilized for fuel purposes. A cord of our finest hardwoods, beech, birch and maple, is barely equal in heating power to a ton of the best anthracite.

Movie Houses.

It is estimated that, up to the present, there are 47,000 motion picture theaters in the whole world. Of the total, America has 20,450, or nearly one-half. In the United States there are more of such places of entertainment than in the whole of Europe.

The Banana.

A peculiar fact about the banana is that no insect will attack it, and another is that it is immune from the diseases that fruits are subject to.

Many fish are capable of producing sounds, some by the scraping of fins or other organs, some by means of the teeth, and some by means of gas emitted from the air-bladder.

"Never be in a hurry with a bee," is an expert's advice to bee-keepers. The bee resents haste, and will probably sting you unless you move slowly but with confidence.

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