mere and Fort Steele. Among the better known claims contributing may be mentioned the Hayes mine (Alberni), Iron Mask, and Pothook (Kamloops), War Eagle, Old Ironsides, Brooklyn, Stemwinder, Knob Hill, Snowshoe, B. C., Oro Denoro, Diamond Hitch and Royal Victoria (in the Boundary), Hidden Treasure, (Spillamachine, Golden) and the Dibble Group (Fort Steele).

Ontario Copper Ores.—This collection, though small, is none the less interesting and instructive. The samples come from the Lake Superior, Algoma and Parry Sound districts and from Hastings county. One especially fine specimen of bornite comes from Parry Sound district and from Hastings county. seen from the Algoma district.

Quebec Copper Ores.—This display is entirely made up of samples sent by Dr. J. Reed, of Reedsdale, Que., and the department of Geological Survey. The specimens come from various parts of the Province where copper mining operations were formerly carried on.

Nova Scotia Copper Ores.—These are practically all specimens of chalcopyrite. Those which attracted most attention come from the deposits of Coxheath, near Sydney, the George River and Antigonish County and have the appearance of being high grade.

Lead.—To all intents and purposes the producing lead ores have been mentioned before when describing the British Columbia silver exhibit. There is, however, a collection of galenas from Ontario and Nova Scotia (14 specimens in all) which, though evidently low grade, may represent deposits which will be workable at some future period.

Zinc.—Though Canada has at present no zinc industry, blende occurs in so many galena deposits in the East and British Columbia that further exploitation may lead to such being established. In the exhibit, here, however, are only two specimens of blende—one from the Zenith mine, Thunder Bay, Ontario, the other from Calumet Island, Pontiac County, Quebec.

Platinum.—This is a very interesting exhibit, the specimens coming from British Columbia and Ontario. Those from British Columbia are samples of crude platinum from North Bend, Fraser River (obtained in dredging) from Quesnelle Forks (obtained in hydraulicking) and various samples from the Tulameen. The Ontario samples consist of gossan holding sperrylite and palladium and platinum ore from the Vermilion mine in the Algoma district and sperrylite from Sudbury.

Mercury.—British Columbia is the only Province represented in this exhibit, the specimens being cinnabar and metacinnabarite from Copper Creek and Hardie Mountain, near Kamloops.

Antimony.—This exhibit consists of a sample of antimony ore from Wolfe County, Quebec, and specimens of stibuite from York County, New Brunswick and Hants County, Nova Scotia.

Nickel.—This is one of the most important and attractive exhibits in the entire collection and one which has been very interesting to the many geologists, mineralogists, mining engineers, etc., of so many nationalities, who have visited the Canadian pavilion. With the exception of four samples, sent by the Geological Survey and which originate from Pontiac County and Brome County, P. Q., and Charlotte County, N. B., the ores all come from the Sudbury region. The latter consist of nickeliferous pyrrohotite chalcopyrite, bornite and chalcocite, some being very similar in appearance to our British Columbia gold-copper ores. The principal exhibit is a joint display made by the Orford Copper Co., and the Canadian Copper Co., of Sudbury, consisting as follows: Pyrrhotite (nickeliferous), chalcopyrite, pyrrhotite and chalcocite (copper-nickel ore), from the Copper Cliff mine, Sudbury, standard copper-nickel matte, single-blow bessemerized nickel matte, pyritic matte produced from the first run of fifty tons of copper ore, with cold blast; no carbonaceous or other fuel used other than sulphur and iron contents of the ore, heap-roasted copper-nickel matte, granulated slag waste, Vermilion mine copper-nickel ore, nickel oxide, nickel sulphide, powdered nickel, nickel shot, nickel plaquettes.

A great deal of extra interest has been taken in this exhibit here on account of the fact that the French colony of New Caledonia is, practically speaking, at the present time, the only nickel producing district in the world, and has a large exhibit of nickel ore in the French colonial section.

Cobalt.—This exhibit consists of one specimen of cobalt bloom from Goat Mountain (Goat River) B. C., sent by the British Columbia Department of Mines.

(To be Continued.)

*THE CHOICE OF SLAGS FOR LEAD SMELTING.

(By Capt. C. C. Longridge, M.Inst.M.E., M.I.Mech.E.)

THE nature of the ore and the character and prices of the fluxes available, indicate, in each case, the constitution of the most suitable slag for lead smelting in the blast furnace. In general, the choice is easily made, as experience has established the relations that should preferably exist between the slag constituents, the chief of which are:

Silica.—The slag percentage of SiO^2 may range between 28 per cent. to 36 per cent. The lowest limit is from 14 per cent. to 15 per cent., and the highest 40 per cent. The former is used only with barytic ores; the latter necessitates a very high smelting temperature, and therefore heavy consumption of fuel, with considerable volatilization losses. The slags, moreover, are viscous and likely to retain much lead as silicate. There is also danger of the formation of iron sows or crucible accretions. In ordinary circumstances, therefore, and with any usual ore mixture, not too rich in zinc, a suitable silica percentage in the slag lies between 30 per cent. and 35 per cent. There should not be less than 30 per cent. of silica, unless there is more than 10 per cent. of zinc oxide in the charge. As the zinc percentage rises that of silica may drop to 25 per cent., which, in general, is the lowest practical limit. When the charge does not contain much zinc, it is often advisable, especially when fluxes are dear, to use a sesquisilicate slag. For though more fuel is used, the quantity of slag is less, and thus the total lead and silver losses in the slag are lower.

Ferrous Oxide.—The percentage of FeO may vary from 24 per cent. to 52 per cent., both figures being extremes. High percentages of iron are not only costly, but by raising the specific gravity of the slag increase the difficulties of separation, and cause matte

* The Mining Journal, London.