```
{
        int RUNNUMBER = 244;
        const int Ndetectors = 13;
        TFile *ifile = new TFile(Form("../rootfiles/run_%d/UNFILTERED/
compass_run_%d.root",RUNNUMBER,RUNNUMBER));
        //TFile *ifile = new TFile(Form("../rootfiles/run_%d/FILTERED/
compass_run_%d.root",RUNNUMBER,RUNNUMBER));
        TFile *ofile = new TFile("calibratedBackgroundHists.root","RECREATE");


        const int bnum[Ndetectors] = {0,0,0,0,0,0,0,  1,1, 1,1,1,1 };//
        const int cnum[Ndetectors] = {0,1,2,3,4,5,6,  0,1, 3,4,5,6 };//
        double gain[Ndetectors];
        double offset[Ndetectors];
        double quad[Ndetectors];
        double blah;
        TH1F *h[Ndetectors];
        TCanvas *c0 = new TCanvas("c0","c0",0,0,600,400);
        ifstream ecal("../cal/calDefault_quadratic.txt");
        if(ecal.is_open())
        {
                for(int i = 0; i<Ndetectors;i++)
                {
                        TString cname;

                        ecal >> cname;
                        ecal >> offset[i];
                        ecal >> gain[i];
                        ecal >> quad[i];
                        ecal >> blah;
                        TString check = Form("b%i_c%i",bnum[i],cnum[i]);
                        TString hname = Form("bgcal%i_%i",bnum[i],cnum[i]);

                        if(cname != check)
                        {
                                cout << "Channel mismatch in calibration file (" <<
cname
                                        <<  "!=" << cname << ")" << endl;
                        }
                        ofile->cd();
                        h[i] = new TH1F(hname,hname,10000,0,10000);
                        TTree *t = static_cast<TTree*>(ifile->Get("Data"));
                        t->SetAlias("Esmeared","Energy+rndm()-0.5");
                        t->Project(hname,Form("Esmeared*Esmeared*%g+Esmeared*%g+
%g",quad[i],gain[i],offset[i]),
                                Form("Energy>0 && Board==%d &&
Channel==%d",bnum[i],cnum[i]));
                        //h[i]->SetLineColor(i+1);
                        if(i==0)
                        {
                                h[i]->SetLineColor(kRed);
                                h[i]->Draw();
                        }
                        else
                        {
                                h[i]->Draw("SAME");

                        }
                        h[i]->Write();
                        c0->cd();

                }
```

```
                c0->SaveAs("c0.root");
                ofile->Close();
        }
        else
        {
                cout << " could not open background calibration parameter file " <<
endl;
        }


}
```