

ge instruments should
y be doubted that elec-
for this purpose.

rometer-head, &c., by
tions, has been so per-
be desired.

e micrometer plate, in-
a fine screw which has
venience in setting that

er on that side of the
becomes very inconven-
y of setting the slit in
der. The plan adopted
which one shall be above
ter is in the meridian,
rpted.

RANCE.

ion to this subject that
scopes has never been
l difficulties of keeping
itions have been appar-
arge mirror, devised by
hich it is hoped may ob-
a supporting the mirror
f the mirror, the surface
ne mirror with accuracy
irror rested directly in
would be gained, since
e mirror. Therefore be-
e elastic substance. M.
o the best results. The
the mirror by a fraction
lasticity of the flannel.
ecause, in order to act,
A perfectly flexible mir-
s without it. But flex-
reduced to quite a small

fraction of its amount. Moreover, I see no insuperable objection to the superposition of two systems of the kind, the mirror resting upon a stiff disk which is itself supported upon a second one.

This plan has been entirely successful in the cases in which it has been applied, mirrors up to 12 inches in diameter showing not the slightest flexure when moved into all practical positions. Unfortunately it has not yet been tried with reflectors of a larger size.

THE EQUATORIAL COUDÉ.

By applying the simple method just described for mounting mirrors, an equatorial surpassing all others in convenience of use has been put into operation at the Paris Observatory. The plan of having a telescope of which the tube itself should be the polar axis, so that the eye-piece should constantly point towards the north pole, is quite familiar to astronomers. The plan heretofore proposed is this:

Below the object-glass, which in the northern hemisphere would point towards the south pole, is to be placed a reflector capable of turning round an axis at right angles to that of the telescope while the latter turns upon its own axis. The latter motion would measure right ascension and the revolution of the mirror would be one-half the change of the declination. This plan is subject to the inconvenience that, in order to look near the south horizon, the mirror would have to be much elongated, while the view around the north pole would always be cut off by the intervention of the telescope itself.

In the equatorial coudé this difficulty is obviated by the use of a second reflector. The telescope, as its name indicates, is elbow-shaped. Its lower part consists of an arm at right angles to the axis. At the elbow is fixed a mirror, from which the light is reflected at an angle of 45 degrees. At the outer end of the arm is a second reflector, also at an angle of 45 degrees, and turning upon a central axis of this arm. By its motion, the field of view of the telescope will sweep over a belt of uniform width from the pole to the horizon, so that its position angle will correspond to declination. By turning the whole instrument on its axis the field of view will sweep through a zone of constant declination. The object-glass is in the arm between the two reflectors. The angle of reflection from each mirror is constantly 45 degrees.

The advantage of this construction is, that the observer does not have to follow the eye-piece of his telescope, but always sits in a fixed position in a comfortable room. All the motions and all the readings are