dimethyl sulphonium iodide, m.p. 165°, $[\alpha]_D^{19°}$ — 27·7°. This basic derivative was water-soluble, and its antibacterial activity against *Staph. aureus* was among the highest yet reported for a steroid derivative. A more detailed account of these and related studies will be published elsewhere[6].

An indication of the bacteriostatic activity shown by the new compounds against *Staph. aureus* is shown by the data below. The figures in the second column refer to the limiting dilution bacteriostatic for *Staph. aureus*, tested for 24 hours at 37° C.

3 : 3-Di(carboxymethylmercapto) 7 : 12-dihydroxycholanic acid	1 : 4,000
3 : 3-Carboxymethylmercapto-Δ^5-cholestene	1 : 2,500
3 : 3-Di(N-acetyl-*p*-aminothiophenyl)-7 : 12-diketocholanic acid	1 : 10,000
Δ^5-Cholestene-3-dimethyl sulphonium iodide	1 : 20,000

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Construction of Troughs for Use in Chromatography Tanks

Previous workers[1–3] have described methods for the construction of troughs for use in chromatography. In this laboratory, a simple method of making troughs has been evolved which does not require any special apparatus or skill. The finished trough, owing to the uneven edge of the glass, does not require a glass rod or strip to hold the papers in place.

The materials required are 'Pyrex' or other similar glass tubing of the required bore (1–1½ in.), a gas-air blow-pipe and a 6-in. file with pointed tang. Any type of file or similar instrument will do, providing that the tang is about 2 in. long and the blade big enough to hold in the hand. The selected length of tubing is held securely on an asbestos-topped bench by an assistant. The operator warms about 4–6 in. of the end with a brush flame, and then, using a small intense flame, heats an area about ½ in. square until soft, at which stage the file tang is pushed in and the glass pulled out towards the operator. The flame is brought backwards about ½ in. and the above repeated until a slit 4–5 in. long has been produced: the ragged edges are now heated and smoothed back with the file, and the whole annealed with a brush flame. A further 4–5 in. is now done and the above repeated until a slot of the required length has been obtained. The ends of the tube are left open until the slot is finished, as this allows the flame to pass down and anneal the glass.

The trough is closed at each end by drawing out the tubing, and is adjusted in length by pressing the still hot ends on to an asbestos sheet. If a trough should fracture during manufacture or be accidentally broken the pieces may be sealed at the ends and used in single-phase tanks. In this laboratory, two people, both unfamiliar with glass-blowing technique, can produce a 36-in. trough in half an hour.

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Origin of Fluctuating Galactic Noise

Since the discovery of discrete sources of radio-radiation in the Milky Way, special attention has been given to the rapid fluctuations shown by some of these. It seemed possible that these could be of the same kind as the 'bursts', occurring in the solar radiation of radio-frequency.

Ryle and Smith, studying the source in Cassiopeia at 80 Mc./s., made the very interesting observation that the variable component is probably not circularly polarized, and they therefore conclude that its origin must be different from that occurring near sunspots[1].

I should like to point out that at least three components of the solar radio-radiation should be distinguished: (1) the radiation of the quiet sun; (2) the radiation of the disturbed sun, varying only slowly and depending on the number of spots; (3) the bursts. Component (2) shows circular polarization; *but the bursts do not.* This seems to be well established by the observations of Payne-Scott, Yabsley and Bolton[2], at frequencies of 60 and 100 Mc./s.

Even if their result should not be general, it is clear that the random polarization of the fluctuation in Cassiopeia gives no evidence against an origin similar to that of the solar bursts. It therefore remains possible that these fluctuations are produced in individual stars. That they could be analogous to the disturbed solar radiation was already very improbable owing to the rapidity of the fluctuations, and is entirely disproved now.

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[1] Ryle and Smith, *Nature*, **162**, 462 (1948).
[2] Payne-Scott, Yabsley and Bolton, *Nature*, **160**, 257 (1947).

Prof. Minnaert has pointed out the distinction between the three components of solar radiation. We would like to make it clear that the primary object of the experiment described in our previous communication[1] was to investigate the origin of the *steady* component of the radiation from the two intense galactic sources. The results which we obtained suggested that the steady component is produced by a mechanism similar to that of the 'thermal' radiation of the quiet sun.

The additional evidence, that the variable component appears to be unpolarized, has suggested to Prof. Minnaert that this component is analogous to solar 'outbursts'. We would agree that such a mechanism may be responsible, although we do not feel satisfied that there is sufficient evidence for the conclusion that solar 'outbursts' are unpolarized.

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