

scopists have taken advantage of the ability to use electronic scanning to broaden stellar spectra and for this a suitable generator is necessary. Scanning techniques can also be used in both spectroscopy and field electronography to detect variability in stellar objects. The nuclear emulsions are developed in the same way as conventional photographic materials although dust problems appear to be more acute. Ilford G5 and L4 are the two emulsions normally used. G5 is the faster and can be used where positional information is the main requirement. For optimum photometric linearity and noise performance, however, the slower, finer grained L4 material is to be preferred. Provided care is taken that no sharp particles of dust are present on the emulsion before it is pressed against the output window, there is little risk of rupturing the mica. Once the vacuum

seal is broken, however, the tube cannot be repaired.

The considerable interest in the Spectracon prompted the British Science Research Council to sponsor the commercial production of the device by Instrument Technology Ltd. So far ITL have produced several standard tubes with S11 (blue sensitive) photocathodes and windows 5 mm wide, but they hope to eventually market Spectracons with wider windows (10 mm) and/or S20 (blue and red sensitive) photocathodes. These first tubes are being subjected to laboratory tests at the Royal Greenwich Observatory and the results show that ITL Spectracons are likely to be of generally high quality. Initial observations with one of them, now at Pretoria, confirm this.

The relatively modest cost of purchasing and running a Spectracon image tube will allow even relatively small

observatories to make their observations more rapidly and with much greater precision. With a large telescope in a good climate it will undoubtedly be possible to record objects fainter than have been seen already. The considerable gains achieved by using this device more than offset the slight adjustments that the astronomer must make to his observing routine, and the more widespread use of the Spectracon must clearly be encouraged.

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A. S. MILSOM

¹ McGee, J. D., McMullan, D., Bacik, H., and Oliver, M., in *Adv. Electronics Electron Phys.*, **28**, A, 61 (Academic Press, London, 1969).

² Palmer, D. R., and Milsom, A. S., in *Adv. Electronics Electron Phys.*, **33** (in the press).

³ Walker, M. F., *Mon. Not. Roy. Astron. Soc.*, **156**, 459 (1972).

CORRESPONDENCE

British Optical Astronomy

SIR,—There has been considerable comment in the press and in editorials in *Nature* and elsewhere concerning the resignation of Sir Fred Hoyle from the Plumian professorship at Cambridge and the circumstances which led up to this disaster for British astronomy. As a close scientific colleague and friend of his, resident in the US, and as an Englishman who is familiar with the international as well as the parochial British astronomical scene, it seems to me that it is time to share a few home truths with your readers and discuss what, if anything, can be done to improve the situation.

While radio astronomy and theoretical astronomy are in reasonably good shape in the UK, optical astronomy as it is being currently practised in the British Isles is only third rate. Why is this? It is primarily because the British astronomical establishment has consistently, over the period since the war, refused to face the real world or accept that anything was the matter, and when important decisions were made, they were either hopelessly wrong or too late or both.

Key mistakes include:

1. The siting of the Isaac Newton Telescope—the biggest British telescope—in the UK, making it almost completely useless.

2. The refusal of the British to join in the European Southern Observatory (ESO) project. The Europeans, as well as two groups from the US, one from Canada and one from the USSR, are

currently building observatories in northern Chile which has the best astronomical climate so far discovered in the world.

3. The decision to build a large telescope in Australia jointly with the Australians without proper consideration of the observing conditions in Australia or outside.

4. The footdragging involved in the creation of the Institute of Theoretical Astronomy in Cambridge, proposed at least eight years before it finally appeared. This was largely a Cambridge mistake, and of course there has been continuous sniping at it, largely from Cambridge, ever since it was created. In the new arrangement which started on August 1 the character of the Institute has been changed for the worse.

5. The decision to build a large Schmidt telescope in Australia without appearing to know or care that it is being put on an inferior site and that the ESO group will have a similar telescope operating in Chile this year.

6. The refusal of the Science Research Council to implement or even to publish the findings of the Northern Hemisphere review committee in which a majority recommended two years ago that a modern National Centre for optical and infrared astronomy be set up to run the overseas ventures.

7. The appointment at Cambridge, as a successor to R. O. Redman, himself an observational astronomer, of a person totally unqualified in this field. This led to Sir Fred's resignation.

8. The diversion of much talent and money into the design and development of equipment which is then used not as a tool to do astronomy with but as an end in itself. The much vaunted Galaxy machine may now be coming into use but it has been inordinately expensive in time and money and there is no great demand for it outside the UK, nor is there any assurance that it will lead to great advances in astronomy.

Clearly many apologists will clamour to refute these statements, but those who are primarily interested in science will accept the validity of everything that has been stated.

Over the years Hoyle, England's most creative astronomer in many decades, has attempted to improve the situation. He and some others, particularly Sir Bernard Lovell, have, to my own personal knowledge, attempted to reverse the trend from almost complete to absolute mediocrity. Some of us have tried, peripherally, to help. We have so far failed.

What, if anything, can be done to retrieve the situation? The only hope would appear to be the creation of a new group or organization with an international background which will set itself the single goal of creating somewhere in the world an optical observatory which, as far as climate and instrumentation are concerned, is second to none. Such an institution must have a parent organization in England, but it must be international

in outlook and probably also in staff, at least to start with. For it must be grasped that, much as the British prefer themselves to foreigners, foreigners, and particularly Americans, lead in this esoteric field. The expatriate British observers, who are prominent in the US and in South Africa, should be invited to become involved despite their almost universal dislike of the pettiness of English astronomical politics, and their strong attachment to clear skies, warm climates, and in some cases high salaries, and their perversity in wanting to investigate the universe rather than talk about it. The observatory should be built on the shortest possible time scale—five years is entirely possible—in Chile where the climate is guaranteed, or possibly in Southern Spain, the Canary Islands, Baja California or the south-west US. Many of us know that it is possible to collaborate and cooperate with the Americans, the Chileans, the Germans, the Spaniards or the Mexicans, and we relish the opportunity of trying. The major telescope should have an aperture ≥ 90 inches, should be built on a proven design and should contain no British, and hence unproven, astronomical innovations. Technical expertise should be encouraged.

Give a few young and active British astronomers, who want to find out, access to such an observatory, and in my opinion the attitudes will change overnight.

Margaret Burbidge, who has just arrived at Herstmonceux, is strongly behind such an idea, but she and others who would like to do this are terribly vulnerable. It will be so easy to talk this proposal to death or worse still to decide to build a telescope on a peculiarly British site (the Rock of Gibraltar?) and a British time scale (21 years for the INT) with a newly designed British mounting and even with a revolutionary mirror design. This is what we can expect if the old system of SRC planning committees, instrumental committees and never-ending consultations with everyone is adhered to. It has long been understood by those who successfully build major instruments, be they big accelerators or large optical or radio telescopes, that the only successful way to operate is by the appointment of a governing board or committee and of a project director (who may well be promised the observatory directorship) and who has authority delegated to him by the board over all phases of design, construction and site selection. He must be able to hire his own staff, again subject to approval by the board.

I have come a long way from the discussion of Hoyle's resignation. But it is clear to me that the circumstances of his departure from Cambridge

should signal the end of attempts to build on the old system. We can try something new like this, but if rapid progress along these lines does not take place, I for one would strongly advise the Science Research Council to save its money. Enough has been wasted already.

Yours faithfully,

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Taxonomy in Distress

SIR,—It should perhaps be pointed out that it is not only insect taxonomy which is in trouble (*Nature*, 238, 475; 1972); the story can be repeated in other fields. A series of major ornithological collections have been allowed to go abroad—the Gould Collection in the last century, the Rothschild Collection before the war, most of the Hewitt Collection within the last few years, among others. The transfer of the birds in the national collection to Tring (*Nature*, 221, 1094 and 1177; 1969) proves not only to have rendered them inaccessible to most people, but to have brought all work on them to a halt indefinitely. Could we perhaps be informed when the collection is going to be available again, and what arrangements have been made to facilitate work on the fossil bird collection now that the recent comparative material has been transferred elsewhere? It seems time that more consideration was given to whether any work will be done behind the excessively expensive ornament adorning the entrance to the new department foisted on us in such an arbitrary manner.

Yours faithfully,

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Lugworm Wronged

SIR,—I would like to correct any impression given by your report on the recent Challenger Society Meeting at the University of East Anglia (News and Views, *Nature*, 238, 131; 1972) that lugworm (*Arenicola marinus*) prey on whiting (*Merlangius merlangus*). In fact the reverse is true. Moreover I claim only that whiting eat lugworm when the latter are used as bait, or are injured, as intact animals are seldom found in whiting stomachs.

Yours faithfully,

M. G. PAWSON

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Announcements

University News

Professor Arthur Whiteman has been appointed to the chair of petroleum geology at the **University of Bergen**.

Professor H. A. F. Dudley, Monash University, has been appointed to the chair of surgery tenable at St Mary's Hospital Medical School, **University of London**, and **Dr R. Wilson, SRC**, has been appointed to the Perren chair of astronomy tenable at University College London.

Appointments

J. M. Buist of ICI Organics Division has been elected chairman of council of the **Institution of the Rubber Industry**.

Dr L. S. Renzoni, International Nickel Company of Canada, **R. Thompson**, Dominion Engineering Works, **W. G. Brissenden**, Noranda Mines, and **V. N. Mackiw**, Sherritt Gordon Mines, have been appointed sub-committee chairmen on the **National Advisory Committee on Mining and Metallurgical Research of Canada**.

The following appointments have been made in the **Science Research Council**: **Mr J. F. Hosie** as director, administration; **Dr A. W. Lines** as director with responsibility for nuclear physics and engineering; **Mr M. O. Robins** as director with responsibility for the Astronomy, Space and Radio and Science Divisions; **Mr A. J. Egginton** as head of the Engineering Division; **Dr H. H. Atkinson** as head of the Astronomy, Space and Radio Division; **Mr I. A. Learmouth** as head of the Nuclear Physics Division; **Mrs J. O. Paton** as head of the Science Division.

Miscellaneous

Professor Thomas K. Sherwood, University of California at Berkeley, has won the 1973 **E. V. Murphree award** in industrial and engineering chemistry, which is sponsored by the Esso Research and Engineering Company.

Professor Stanford Moore and **Professor W. H. Stein**, Rockefeller University, have been jointly awarded the third **Linderström-Lang gold medal** and prize of 15,000 Danish kroner, in recognition of their contributions to protein chemistry.

Erratum

IN the article "Circadian Variation of RNA in Human Leucocytes", by William C. Kohler, Ismet Karacan and Owen M. Rennert (*Nature*, 238, 94; 1972), the second sentence of paragraph 2 should read "A diurnal variation in the number of circulating leucocytes in man has