

arising from tape-slide generated material are between 3% and 12% better depending on the point of comparison. The majority of students expressed a desire for more such programmes. The main reported disadvantages of the method are connected with speed of presentation or technical difficulties (although given a choice students at another centre preferred automatic equipment in study booths; Harden, Stevenson, Lever, Holroyd & Wilson, 1975). But they readily appreciated the convenience of the method including the facility to repeat and ease of access and availability. A sample of the type of tape-slide in use will be available as a demonstration.

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The teaching of pharmacology to undergraduate pharmacy students

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It has been stated that learning is enhanced by feedback (Miller, 1967); this is true not only for the students studying in academic institutions but also for staff involved in teaching them. Students attending the School of Pharmacy, University of Bradford are frequently asked to complete questionnaires concerning the teaching methods and content of pharmacology courses (Cooper & Foy, 1967) but this is the first attempt we have made to evaluate the course by means of a questionnaire sent out to pharmacy graduates. The analysis was on a much smaller scale than the one on medical pharmacology recently reported from an American centre (Burford & Stritter, 1974).

The questionnaire was simple and divided into two main parts, the first part being involved with the occupation of the ex-student since graduation and the second part devoted to an evaluation of the pharmacology section of the pharmacy course. The questionnaire was sent to all persons (212) who graduated during the years 1972–74 from this School of Pharmacy, 51% of the forms were completed and returned for analysis.

The undergraduate course in pharmacology for pharmacy students in this University can be divided into two main sections, namely, experimental pharmacology in the second year and applied

pharmacology in the third year of studies. The experimental pharmacology course introduces the student to the fundamental principles of the science of pharmacology and is supported by a practical programme which demonstrates the mechanism of drug action. The course in applied pharmacology has been described fully elsewhere (Foy, Hicks, Leach & Senior, 1972) and is designed to prepare the student for a role in a clinical multi-disciplinary team. Approximately 50% of the applied pharmacology section is composed of the study of clinical pharmacology. Results from the completed questionnaires show that the pharmacology component of the pharmacy course was rated at 3.5 on a 'completely satisfactory' 5—>1 'inadequate' scale. The relevance of the pharmacology course to the work currently being undertaken by the graduate varies from 3.6 on a 'relevant' 5—>1 'irrelevant' scale for 1974 and 1973 graduates to 2.9 for 1972 graduates. The survey calls for more emphasis in the course to be placed on drug interactions, applied pharmacology and therapeutics, toxicology and pathology. Topics which are seen as expendable to allow expansion in the above areas are pharmacodynamics and pharmacokinetics. In a previous survey sent to all types of recent graduates in pharmacology the most frequent criticism of the components of the pharmacology course was also lack of clinical teaching on the use of drugs (Bakhle, Straughan & Webster, 1974).

The results from this latest 1976 survey to be extended in the communication show that a further emphasis towards clinical pharmacology may be desirable if the undergraduate course for pharmacists is to result in a more adequate pharmacological training.

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Career patterns in science graduate pharmacologists

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To meet the increasing demand for pharmacologists in both universities and the pharmaceutical industry, several universities have over the past 25 years established science-based degrees in pharmacology.

majority of graduates within the upper and lower second class groups.

As is evident from Table 1, 67 of the ordinary B.Sc. graduates were untraced and of the remainder just under half proceeded to honours pharmacology. Thirteen students went directly at this stage into the pharmaceutical industry. Of our 53 honours graduates, approximately half proceeded to further post-graduate study, the other major careers undertaken being medicine and the pharmaceutical industry. Of the 25 students who had taken post-graduate degrees, 15 went into university posts either

Table 1 Career patterns in science graduate pharmacologists

	Ordinary B.Sc.	Honours B.Sc.	M.Sc./Ph.d.
No. of students	181	53	25
<i>After graduation</i>			
Honours B.Sc. (other subjects)	17	—	—
M.Sc./Ph.D.	2	26	—
Medicine/Dentistry	3	5	1
University teaching/research	0	2	15
School teaching	8	1	—
Pharmaceutical/chemical industry	13	8	8
Laboratory-based occupations	8	4	—
Librarianship	—	2	—
Non science-based occupations	10	5	—
Retiral thro' marriage	—	—	1
Untraced	67	—	—

The B.Sc. Pharmacology Course in Dundee was one of the first to be established, the first student graduating from the Honours Course in 1954. This paper surveys the career patterns of the 197 students who have graduated from this department between 1954 and 1975. Of these, 181 and 53 completed the ordinary and honours B.Sc. courses respectively and 25 students have taken post-graduate degrees in this department (Table 1). All of the honours graduates had previously taken the ordinary B.Sc. course and, of the 25 post-graduates, 9 were recruited from our own honours graduates. The pattern of honours grades awarded showed an even distribution, with the

in teaching or in research and 8 joined the pharmaceutical industry.

In summary, of a total of 133 students followed up (117 Dundee undergraduates plus 16 post-graduates from elsewhere), 64 have entered occupations in which Pharmacology is predominant, 46 have entered careers with a general scientific basis and 20 are known to have entered other occupations, with no scientific basis.

The authors are grateful to the University of Dundee Careers and Appointments Service for information on careers taken up by ordinary B.Sc. graduates.