

BRITISH PHARMACEUTICAL CONFERENCE



H. DAVIS

Chairman, 1954

BRITISH PHARMACEUTICAL CONFERENCE OXFORD, 1954

Chairman: H. DAVIS

CHAIRMAN'S ADDRESS

THE NATIONAL HEALTH SERVICE AND PHARMACY

It is customary for the Chairman of the Conference to address you on a branch of pharmacy, in which he is an expert or to which he has devoted the greater part of his professional career. In choosing "The National Health Service and Pharmacy" I am fulfilling neither requirement; the Service is too young to have produced its experts, but having been immersed in its formation and application since 1947, I think you would expect me to choose the result of this experience as my topic for to-day. You will appreciate that a government official is often looked upon as a spokesman of official policy. To-day, I address you as a fellow-member of the profession and what I have to say is my own personal opinion; not to be construed in any way as official comment or policy. That great literary doctor, Oliver Wendell Holmes, once wrote "One who means to talk with entire sincerity—always feels himself in danger of two things, namely, an affectation of bluntness, like that of which Cornwall accuses Kent in *Lear*, and actual rudeness." I hope to steer clear of both. You will note that I have not called my address "Pharmacy and the National Health Service"; I have deliberately reversed the order as I propose to examine as objectively as I can the impact of this great social experiment on the practice of pharmacy. As the retail pharmacist holds a key position in being a direct link between the community and its medicine retail pharmacy must take pride of place.

RETAIL PHARMACY

Let us consider the days before the introduction of the National Health Service. Apart from National Health Insurance demands, the dispensing of medicines, for which the pharmacist has always been specifically trained, was divided between the pharmacist and the dispensing doctor. In many parts of the country the private prescription was a rarity; overnight, in July, 1948, the pharmacist came into his own and apart from the continued supply of medicines by dispensing doctors in rural areas, the dispensing of medicines—the professional side of his calling, rightly became his prerogative. How successfully he dealt with this vast increase in the demand for his services was seen from the absence of public complaint about delay in the dispensing of prescriptions. With the dispensing of upwards of 90 per cent. of the nation's prescriptions (the remainder being dispensed privately) for the first time in history we are able to investigate medical and pharmaceutical practice from the prescriptions which pass through the pricing offices. In the Ministry of Health is a small investigational unit,

which in addition to examining prescriptions for cases of extravagant or excessive prescribing, produces statistics of the types of pharmaceutical products prescribed. Let us compare the types for 1948 in the last days of National Health Insurance with those for the earliest and most recent days of the National Health Service, Table I.

TABLE I
ANALYSIS OF TYPES OF PHARMACEUTICAL PREPARATIONS PRESCRIBED

Types	Percentage of all prescriptions including appliances		1953 N.H.S. (January)
	1947-48 N.H.I.	1948 N.H.S.	
Mixtures (excluding proprietaries)	38.40	33.30	27.65
Tablets, capsules, pills, lozenges (including proprietaries)	26.10	29.20	30.10
Liniments and applications (excluding proprietaries)	2.60	1.82	1.10
Lotions and gargles (excluding proprietaries)	2.75	2.54	1.70
Ointments, creams and pastes (excluding proprietaries)	5.38	4.60	3.32
Proprietary preparations	6.74	14.60	27.60

These figures are obtained from analyses of samples of about 100,000 prescriptions from England and Wales.

From these figures we see a significant decline in the proportion of mixtures and a marked increase in the prescribing of tablets. We also see the advance of the proprietaries from about 14 per cent. in the early days of the National Health Service to approximately 27.6 per cent. in January, 1953. You will note that I have not used the figure of 6.7 per cent. from the last year of the operation of National Health Insurance in comparing the frequency of the prescribing of proprietaries; such a comparison would be fallacious because of the absorption of most of the private dispensing of 1947-48 into the initial stage of the National Health Service.

I thought it would be interesting to determine the frequency of prescriptions for a few extemporaneous types which in the past have formed the nucleus of our pharmaceutical skill and knowledge. In a batch of 136,280 prescriptions, including those for appliances which constitute about 8 per cent. annually, for January, 1953, there were 4 prescriptions for cachets, 4 for hard gelatin capsules, 49 for individually wrapped powders, 16 for pills and one only for suppositories; there were no other prescriptions for *extemporaneous* preparations of an uncommon type.

The practice of dispensing has therefore changed considerably during the past few years and it continues to change from year to year. Instead of bemoaning the loss of many of the older extemporaneous preparations as some pharmacists do, let us acquire more knowledge of the new drugs we are handling. I have often heard it said that the dispensing of increasing numbers of proprietaries and compounded drugs must lead to an inevitable loss of status. This is far from the truth. I have been privileged to study the pharmaceutical services in other European countries where the incidence of prescriptions for specialities is much higher than in the United Kingdom. Has pharmacy lost caste in those countries? Far from it; pharmacy there is still an honoured and proud profession. In order to maintain and advance our position we must be able to discuss intelligently the new medicaments with other members of the health service, the general

practitioner in particular. He cannot keep pace with the pharmaceutical aspects of the ever-increasing number of new medicaments. By pharmaceutical aspects I refer chiefly to the modes of administration and presentation including the stability of the dispensed product. The obvious supplier of this information is the retail pharmacist and I maintain it is the duty of all in practice to keep themselves well informed on important new products.

Many of us here to-day were nurtured on the British Pharmacopœia 1914 or the B.P. 1898, some on the B.P. 1932, a few on the B.P. 1948 and maybe one or two on the B.P. 1953. The Pharmacopœia of 1932 was the first in which systematic directions for storage appeared. With the introduction in the 1948 Pharmacopœia of comparatively unstable substances such as penicillin and others, conditions of storage became one of the most significant factors in maintaining the potency of some of our most important medicaments. The efficient pharmacist is aware of these requirements and applies them, but unfortunately there are some who have not applied them. For evidence of this I would refer you to the notice of the report of the Birmingham City Analyst on Oral Penicillin Tablets in *The Pharmaceutical Journal*¹ in 1953. Whatever our personal reactions are to this report we cannot question the fact that there were some examples of dispensing that were certainly no credit to the profession. A profession benefits from an occasional shock of this sort which is the best answer to complacency. The Ministry of Health, thanks to a generous response from the manufacturers of oral penicillin tablets who supplied valuable analytical information on the keeping properties of the tablets, were able to present the latest information on the stability and conditions of storage of modern oral tablets of benzylpenicillin. I am delighted to see that one of our papers for the science sessions deals with this subject.

Lastly, in dealing with the impact of the Health Service on the retail practice of pharmacy, I would like to refer to the drug testing scheme. The statistics we are able to obtain from these tests form an important part of the contemporary history of pharmacy. We are able to determine the general level of accuracy of dispensing attained under practical working conditions. Sargent² gave a survey of the work in the first year of the National Health Service. Price³ gave statistics for 1952. Sargent reported that the great majority of the preparations analysed (2313) showed an average percentage deviation from the theoretical of a little over 2 per cent., an excellent figure and one which reflects credit on the standard attained by most of the contractors in the service. But there remains a small minority whose standard is below; we, as a profession, can never be satisfied until this disappears.

So far I have dealt with points of specific importance to the retail pharmacist; there are other aspects which I shall mention in connection with manufacturing pharmacy which are of mutual interest.

MANUFACTURING PHARMACY

An efficient pharmaceutical industry is an essential requirement for a successful health service. Efficiency not only demands modern methods of

research and production, but also requires a knowledge of the economics of medical treatment. The change from medical treatment under the National Health Insurance Acts to that under the National Health Service Acts has brought certain consequences which cannot be ignored. In what I might call the private patient days, most medicines were purchased by the public; to-day, apart from the shilling contribution for each prescription form, the cost is largely borne by the State. Is it therefore to be wondered at that the State now takes a much greater interest in the cost of these medicines? The rapid rise in the cost of the pharmaceutical services forced the Ministry of Health to investigate the cost of drugs. You are aware of the work of the Joint Committee on Prescribing which was appointed in 1949 "to consider and report from time to time whether it is desirable and practicable to restrict or discourage the prescribing by practitioners giving general medical services under the National Health Service Acts of 1946 and 1947, of (1) drugs and medicines of doubtful value or of unethical character; (2) unnecessarily expensive brands of standard drugs."

The Committee in its Second Interim Report advised that proprietary preparations could be arranged in six categories. Time does not allow me to consider this report in detail, and in any event, many of you who have read and studied it would not wish me to do so. I must, however, refer to the published list of categories 1, 5 and 6 which was issued in July, 1953, following the Committee's classification of just under 5000 ethical proprietaries. In Category 1, "New drugs of proved value not yet standard," there were approximately 150; in Category 5, preparations not in the British Pharmacopœia, British Pharmaceutical Codex or National Formulary, which in the Committee's view, have not been proved of therapeutic value, there were approximately 250, and in Category 6, combinations of categories (4) and (5) there were approximately 400. Categories (2), (3) and (4), which consist of proprietaries which are essentially brands of standard preparations, or combinations of standard preparations, constituted the great majority, namely about 3300. The Committee recommended that preparations in category (1) should be freely prescribable, those in categories (2), (3) and (4) should be prescribable subject to: their not being designated as foods, toilet preparations or not drugs for N.H.S. purposes, their not being advertised direct to the public, and satisfactory arrangements for price being made between the Health Departments and the manufacturers.

The pharmaceutical industry is therefore confronted with the following changes in the economics of medical treatment as a result of the introduction of the National Health Service:—

(1) the greater part of the output of ethical proprietaries for the home market is bought by the State;

(2) as a result the State is closely concerned with the cost of these preparations and through the Cohen Committee has formulated principles on which they may be prescribed;

(3) a significant part of the output of basic standard drugs is taken by the N.H.S. and paid for by the State.

Research is the life-blood of a successful industry. Without it the

industry would stagnate and sooner or later we would find ourselves almost entirely dependent on the products of other nations. Research, however, is a costly business; those who have indulged in it know only too well its disappointments. In fundamental and academic research negative answers to a problem may be of great import to the scientific world. But in industrial pharmaceutical research the ultimate success is measured by the production of new or significantly improved products which can be launched with confidence on the ocean of therapeutics. I venture to suggest that the Cohen classification, which I am afraid has at times inspired some uncomplimentary remarks from my friends in industry, has provided a stimulus in its Category 1; a new drug which qualifies for inclusion in this group will bring its own reward. On the other hand I suggest we have already too many products in categories 2, 3 and 4. Many represent needless multiplications of a common theme; their names alone are a burden to busy practitioners; and their presence on the chemist-contractor's shelves is often a source of financial embarrassment and a waste of valuable space.

May I now pass to what I hope will be less controversial, and give you a picture of the products we are using to-day. An important feature of our service is the availability of material to investigate the contemporary history of medicine and pharmacy. With the prescriptions for the treatment of over 90 per cent. of the population passing through the pricing offices we have interesting material for investigation. By examining suitably chosen samples of a little over 100,000 a month we are able to get a reasonably good picture of prescribing trends.

Dunlop, Henderson and Inch⁴ surveyed 17,301 prescriptions dispensed in England and Wales in 1951, and classified these pharmaceutically and pharmacologically. Dunlop, Inch and Paul⁵ followed this up for 18,848 Scottish prescriptions in 1951. It is interesting to note that their results from the smaller samples are of the same order as ours from the larger samples. Their pharmaceutical classifications showed in England and Wales, in September, 1949, 36 per cent. of mixtures, 32 per cent. of tablets, and 21 per cent. of proprietaries; in Scotland approximately 29 per cent. of mixtures, 34.4 per cent. of tablets and 31 per cent. of proprietaries. Our latest figures for England and Wales as mentioned earlier in my address were 27.65, 30.1 and 27.6 per cent. respectively.

Pharmacists engaged in the manufacturing branch of our profession will, I am sure, be more interested in the pharmacological and therapeutic classifications with which I now propose to deal. We have only recently embarked on these investigations and I am only able to give the complete picture for one month of the year; this is for January, 1953. The figures were computed for a sample of 127,809 prescriptions for drugs for England and Wales and are given in Table II.

"Unclassified" represents prescriptions dispensed to the prescriber's own formula and not to a formula in a standard work of reference. January, 1953, was an exceptional month; an influenza epidemic prevailed in many parts of the country and caused a significant rise in the number of prescriptions dispensed. This accounts for the high figure, 17.2 per cent., for cough

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preparations and this depresses the other figures. We know that the barbiturates, which constituted 6.3 per cent. of this sample, annually represent about 8 per cent. of all prescriptions.

TABLE II
THERAPEUTIC CLASSIFICATION OF PRESCRIPTIONS DISPENSED IN JANUARY, 1953

Therapeutic category	Percentage of total number of prescriptions
Antibiotics	4.19
Sulphonamides	4.14
Barbiturates	6.30
Sedatives and hypnotics (other than barbiturates)	2.53
Insulin	0.30
Sex hormones	0.79
Other hormones	0.32
Vitamins (except B ₁₂) prescribed singly	1.70
Polyvitamin preparations	1.63
Hæmatinics (including Vitamin B ₁₂)	0.19
Tonics	5.25
Analgesics and antipyretics (excluding Dangerous Drugs)	9.89
Dangerous Drugs	0.86
Medicaments for external use	11.73
Cardiac preparations	1.88
Antihistaminics	1.28
Laxatives, purgatives and antacids	10.24
Cough preparations	17.20
Sera and vaccines	0.11
Asthma preparations	2.61
Miscellaneous	10.57
Unclassified	6.30

It has, however, been possible to investigate the pharmacological classification of the proprietary products for January and September, 1953. These are given in Table III, which also includes in the third column figures representing the numerical distribution of these groups in 4509 ethical proprietaries classified by the Cohen committee.

TABLE III
CLASSIFICATION OF PROPRIETARIES PRESCRIBED ON FORMS E.C.10

	January, 1953 136,000	September, 1953 92,562
Number of prescriptions in sample	26.7	27.3
Percentage of proprietaries in sample		

Therapeutic classification of the proprietaries in the samples and of 4509 ethical proprietaries classified by Cohen Committee

	January, 1953, per cent.	September, 1953, per cent.	Number of proprietaries
Antibiotics	9.01	9.00	111
Sulphonamides	10.93	6.81	139
Sex hormones	0.85	1.12	237
Other hormones	0.17	0.10	290
Barbiturates	9.85	13.49	85
Sedatives and hypnotics (other than barbiturates)	0.82	1.04	252
Antihistaminics	4.42	9.87	53
Vitamins (except B ₁₂) singly prescribed	3.15	2.75	189
Polyvitamin preparations	2.40	2.28	108
Tonics	10.73	9.48	381
Hæmatinics (for macrocytic anæmias)	0.63	2.21	63
Analgesics and antipyretics (excluding D.D.)	6.29	6.84	147
Dangerous Drugs	1.76	1.51	—
Cardiac preparations	2.13	1.68	203
Laxatives, purgatives and antacids	4.85	6.25	402
Cough preparations	8.15	0.89	202
Sera and vaccines	0.29	0.64	—
Asthma preparations	2.71	3.21	123
Medicaments for external use	10.94	11.57	729
Miscellaneous	9.92	9.26	795

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From columns 1 and 2 we see that 5 groups, antibiotics, sulphonamides, barbiturates, tonics, and external preparations account almost equally amongst themselves for half the proprietary preparations prescribed. On comparing figures in column 3 with these we find that even after including the sedatives with the barbiturates these 5 groups comprise only about 38 per cent. of the total number of ethical preparations examined and the individual distribution of the 5 groups is far from even. Another interesting observation is that although laxatives, purgatives and antacids are prescribed to an extent of about 5.5 per cent., they constitute about 8 per cent. of the available ethical proprietaries. You may be interested to know that the 402 preparations in this group comprise 118 laxatives and purgatives and 274 antacids and digestives.

During the course of these investigations Doyle⁶ described prescription trends in the United States following an analysis of 231,860 prescriptions dispensed in 1952.

Table IV gives a comparison between our figures for January, 1953, and the American figures for 1952. I have also given an interesting comparison of the average prescription costs and the costs per head of the population.

TABLE IV
COMPARISON OF PRESCRIPTION TRENDS IN ENGLAND AND WALES AND THE UNITED STATES

England and Wales		United States of America	
Therapeutic classification	Percentage of total number of prescriptions	Percentage of total number of prescriptions	Therapeutic classification
Antibiotics	4.19	25.88	<i>Anti-infectives</i>
Sulphonamides	4.14		
"Anti-infectives"	Total 8.33		
Analgesics and antipyretics (except narcotics)	9.89	10.46	<i>Analgesics and antiarthritics</i>
Dangerous drugs	0.86		
"Analgesics"	Total 10.75		
Vitamins (except B ₁₂) prescribed singly	1.70	9.66	<i>Vitamins, hæmatinics and related products</i>
Polyvitamin preparations	1.63		
Hæmatinics (including B ₁₂)	0.19		
Tonics	5.25		
"Vitamins, hæmatinics and related products"	Total 8.77		
Barbiturates	6.30	9.39	<i>Sedatives and hypnotics</i>
Sedatives and hypnotics (other than barbiturates)	2.53		
"Sedatives and hypnotics"	Total 8.83		
Antihistaminics	1.28	6.38	<i>Antihistaminics</i>
Laxatives, purgatives, antacids and similar preparations	10.24	5.87	<i>Antacids, antispasmodics and peptic-ulcer therapy</i>
Preparations for relief of cough	17.20	5.31	<i>Cough preparations and nasal decongestants</i>

Comparison of costs

Average prescription cost		£	s.	d.
1939	Not known		6	6
1952	4s. 0½d.		14	2
Cost per head of population				
1939	Not known		9	1
1952	£1 2. 0d.	1	16	5

Here we have a comparison of costs between a country without a national health service and our own. Due allowance must be made for the differences in the costs of living between the two countries. Other features are the close agreement between the figures for the analgesics, the vitamins and the sedatives and hypnotics. The most significant differences are the much higher consumption of preparations for the relief of coughs in England and Wales and the greater use of anti-infectives and antihistaminics in the United States.

Before concluding this section I must refer to one impact of the service which has been pleasing to the manufacturers and to the Ministry of Health. I refer particularly to the closer co-operation on technical matters that exists between the industry and the Ministry. A good example of this liaison was the way in which the manufacturers of oral penicillin tablets so rapidly gave their laboratory results on the stability of their products to the Ministry. There are other instances, too numerous to mention, where the Ministry has been helped considerably by scientists on the staffs of some of our leading manufacturers. This address gives me an opportunity to pay tribute to their willing responses to the many requests for advice made by the Ministry.

I now pass to a branch of pharmacy in which I was proud and happy to serve for 18 years, namely, hospital pharmacy.

HOSPITAL PHARMACY

Hospital pharmacy was the subject of a Conference Chairman's address in 1932, when that prominent pharmacist, the late Herbert Skinner, spoke at length on the work of the hospital pharmacists. I would refer our younger hospital pharmacists to-day to that address in which they would find much to interest and inspire them. During my hospital service I saw great changes. Apart from the introduction of such important drugs as liver injections, intravenous anæsthetics, the sulphonamides and the antibiotics I saw the development of parenteral therapy and the passing of many old and favourite remedies. I saw pharmaceutical practice in hospitals change as significantly as the British Pharmacopœias changed in 1932 and 1948. I saw the annual drug bill commence its persistent rise as great medical and pharmaceutical discoveries took their place in hospital treatment. I also saw that the time was not far distant when the finances of the hospitals under the voluntary system would inevitably fail to meet these changed circumstances. With the advent of the National Health Service in 1948 almost all the hospitals in the country were taken over by the nation. These hospitals were far from uniform; some had always been in financial difficulties, others were richly endowed and their popularity guaranteed success to any charitable appeal. The standards of the pharmaceutical departments varied with the state of the hospital's finances from the spacious and well-equipped of the more fortunate to the cramped and meagrely furnished dispensaries of the poorer hospitals. Excellent work was done with obsolescent apparatus, but dispensed mixtures had often to be supplied in cheap, second-hand containers which in no

circumstances could be considered to represent a satisfactory standard of dispensing.

With the changed conditions arising from the introduction of the National Health Service, changes have already taken place in the pharmaceutical departments of many hospitals. It has been a great pleasure to me to have had the opportunity to comment on plans for the improvement of some of these departments and later to see those improvements made and new efficient departments replace the old, cramped and ill-equipped. Many of these improvements, I am convinced, could not have been made under the old system. An efficient hospital demands efficiency in every department and in no sphere is efficiency more rewarding than in the pharmaceutical department.

But a note of warning must be introduced here. There are some who apparently think the State has an unlimited amount of money to spend. Pride of possession is a failing in most of us; we admire a new piece of pharmaceutical machinery with its glittering stainless steel or chromium plate and think how its presence would add glory to the laboratory. Efficiency is not a function of gleam and glitter. Small-scale manufacturing is not always efficient, but for a reason I have never been able to fathom some pharmacists look upon the small-scale production of galenicals as the height of their ambition.

One of the outstanding features of the service was the setting-up of standing professional advisory committees. Pharmacy has its standing committee whose membership includes hospital pharmacists. More time has been devoted by the committee to hospital pharmacy than to any other branch of pharmacy. A special Sub-Committee on the Hospital Pharmaceutical Service, now known as the Linstead Committee, was set up and many pharmaceutical departments visited. As a result the Ministry has been furnished with valuable information and for the first time in the history of hospital pharmacy, a fairly comprehensive picture of the service in England and Wales is now available. I have no doubt that hospital pharmacy will ultimately progress as a result of this investigation, a summary of which has now been published⁷.

Before leaving this branch of the service I would like to comment on the changing nature of the work of the hospital pharmacists. In the old days one rarely heard the terms "pharmacy," "pharmacist" or "pharmaceutical" in the hospital. The pharmacist was the dispenser and a dispenser was a person who dwelt in a dispensary and dispensed medicines. This is far removed from the position to-day. There is still much routine dispensing to be done, but even that differs considerably from the dispensing of yesterday. But more and more the pharmacist's office becomes the hub of therapeutics in the hospital. The ever-growing collection of new drugs, many of them complex organic chemicals, makes it more and more difficult for the prescriber to keep pace with them. When he seeks information he invariably goes to the hospital pharmacist whose most valuable service to the hospital can be erected on an up-to-the-minute knowledge of modern advances in therapeutics. The brightest feature of

modern hospital pharmacy is the way in which the pharmacist is brought into close personal touch with his medical colleagues as a result of his building up a reputation for an encyclopædic knowledge of modern medicaments.

The status of the individual pharmacist depends almost entirely on his or her personality and technical knowledge. One of the first things to realise is that the certificate of registration as pharmaceutical chemist is the beginning and not the end of the acquiring of pharmaceutical knowledge. Status cannot be handed to you from Whitehall. One has only to visit several hospitals to realise the differences that exist between the status of one pharmacist and another. I know only too well that the lot of the hospital pharmacist is not always a happy one, but on the whole it is a fascinating, interesting and pleasant life. Personally I would like to see the pharmacist develop more and more along the lines of the technologist with technicians suitably trained and qualified to do much of the routine dispensing. During my travels as a member of the Subcommittee on Pharmaceutical Products of the Brussels Treaty Organisation I have been able to study hospital pharmacy on the Continent. One of the most impressive pharmaceutical departments I visited was the municipal central pharmaceutical laboratory at The Hague. Apart from the director, or the chief pharmacist as we would call him, whose status is similar to that of the chief medical officer of the municipality, pharmacists were employed only as directors of the laboratories, e.g., manufacturing, dispensing and biochemical, most of the routine work being done by state-qualified technicians. I have been impressed by one or two large pharmaceutical departments in this country where in recent years developments have taken place along these lines.

I now pass on to the last branch of pharmacy with which I can deal in the limited time at my disposal. It is with some trepidation that I pass to academic pharmacy as, strictly speaking, the National Health Service has had little effect on this branch of our calling.

ACADEMIC PHARMACY

Two of our prominent pharmaceutical teachers, both occupants of this chair, Professor H. Brindle in 1944 and Mr. H. B. Mackie in 1952, addressed you on pharmaceutical education. Their qualifications for these addresses were obvious, mine are possibly nebulous. One of the advantages of my position to-day is that I am able to speak on a subject of my choice and ever afterwards hold my peace. I have therefore chosen to conclude my address with a few pertinent observations on the present education of or for a pharmacist. My point of view differs from that of my predecessors; most of my professional career has been concerned with the employment of the end-products of their laboratories.

For four years, from 1925 to 1929, I trained pharmaceutical students for the Chemist and Druggist and the Pharmaceutical Chemist Qualifying Examinations. In 1929 I succeeded Dr. C. H. Hampshire as Chief Pharmacist to University College Hospital and also commenced my long career as an examiner of pharmaceutical students. I have therefore been

an eye-witness of the progress of pharmaceutical education. Being closely connected with the National Health Service which is directly or indirectly the largest employer of pharmaceutical man-power to-day, I think I have a just claim to speak on their training. With the rapid developments in organic chemistry, biochemistry, pharmacology and therapeutics, the pharmacist, who prepares and handles the products of research in those fields, obviously had to develop his own subject. A lengthening of his academic training was therefore obvious, and we now have a minimum two-years' post-intermediate training for the Pharmaceutical Chemist Qualifying Examination. I offer no criticism of the duration of training, but I sincerely believe there is room for improvement in the syllabuses of the professional subjects in the examination.

Pharmacy, as with kindred professions, requires a large majority of practitioners and a minority of specialists. I look upon the course of study for the Pharmaceutical Chemist Qualifying Examination as being designed for the practitioners and the university degrees in pharmacy as being intended for the specialists. The syllabus for the qualifying examination should be designed to produce a man who is equipped to meet the demands of the normal practice of pharmacy in retail or hospital. Those demands will consist chiefly of dispensing or the supervision of dispensing. As I have said earlier in my address, efficient dispensing demands a sound knowledge of the materials he handles, a knowledge which will enable him competently to discuss the pharmaceutical aspects of his drugs with the medical practitioner. I do not consider the rolling of a perfect pill or the spreading of a pristine plaster essential qualifications for the modern pharmacist. On the other hand, I do not consider an ability rapidly to depict structural formulæ, or overdoses of bacteriology, physiology, pharmacognosy and forensic pharmacy, as qualifications for the modern pharmacist, who is to be the general practitioner of his profession. Somewhere between is the happy medium and my experience during the past few years has led me to think we have moved a little too far from realism to theory and I take this opportunity to say so.

I sincerely hope I have not offended any of my friends who are engaged in the teaching of the subjects I have mentioned. As a matter of fact, I have reason to suspect some agree with me on the general point that there has been a tendency to overload the course of training of the general pharmaceutical practitioner. Let us have our pharmaceutical specialists by all means, but let the universities take care of their training. Let us not, however, as pharmacists, bring forth that old argument which I have so often heard in the past that the standard of the Pharmaceutical Society's Qualifications should be the highest obtainable in the land. Let the Society's qualifications by all means be the best standard of general attainment for the practising pharmacist, but let us not attempt to compare it with the degrees in pharmacy which are intended essentially to lead to higher academic attainments to equip the research workers and the teachers of the future. A profession lives by its research contributions; without them it falters and dies.

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CONCLUSION

I would refer you to the opening paragraph of my address, I have talked "with entire sincerity"; I have tried to put before you as objectively as possible my personal thoughts on the impact of the National Health Service on pharmacy; I hope I cannot be accused of "actual rudeness." Where pharmacy is concerned I am a confirmed optimist; I close with the conviction that our profession which can proudly survey its past record will continue nobly to contribute to the welfare of man.

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