THE GHANA PHARMACEUTICAL JOURNAL

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32nd. Conference and Exhibition, 1973
August 2 - 5, 1973

Theme: **"PHARMACY and NATIONAL DEVELOPMENT"**

Venue: **CONFERENCE HALL, STATE HOUSE, ACCRA**

Guest speaker: **PROF. GABRIEL OSUIDE** B. Pharm., Ph. D., MPS.
Head, Department of Pharmacy and Pharmacology, Ahmadu Bello University, Zaria, Nigeria.

Under the Distinguished Chairmanship of
V. K. AIDOO Esq., MPSG., M.I.Pharm.M.,
President, Pharmaceutical Society of Ghana.

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Hon. General Secretary.

THE GHANA PHARMACEUTICAL JOURNAL

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Editorial

PHARMACY is perpetually undergoing changes in its form and practice. In Ghana the practice of pharmacy started in the hospitals with very close relationship with the practice of medicine. In the hospitals the medical dispenser was 'doctor,' 'nurse,' 'anaesthetist,' 'pathologist' and almost everything all rolled into one. Thus it was, that the old dispenser did not consider it much an offence when he indulges in treating a patient, a practice he has hitherto been used to almost all his life-time. Therefore, the separation of the two practices has occasioned some pain and recrimination on both sides.

The contemporary pharmacist, the successor to the old class dispenser, is a different man altogether both in training and outlook, and to him there is no reason in straying into a field where his presence is hardly justifiable under any circumstances. The shortage of doctors and the argument that some doctors also practise pharmacy and pharmacies being in consequence starved of doctor's prescriptions is not wholly acceptable and does not in anyway make the offence any more extenuating. Nor do doctors taking umbrage with offending pharmacists within their moral rights. The conflict which forms part of the history of the two professions all over the world has been solved somewhat in other countries and, it is hoped that given goodwill and understanding a complete separation can be achieved leaving cooperation in diversity in its place.

In this connection we believe it is urgently necessary that the Medical and Pharmaceutical Professions in Ghana should find ways and means of resolving this issue of some general practice pharmacists treating patients and almost all doctors in private practice practising pharmacy. This is very important now that the Pharmaceutical Society is doing all it can to get those pharmacists who have been treating patients stop the practice. But of course, if you view this against the background that in Ghana some 80 per cent of all patients are seen in Hospitals — government, Mission, or Mines — which have their own dispensaries from where virtually all prescriptions for both in-patients and out-patients are filled, then the general practice pharmacist is really hard put to it if those few patients who visit private doctors also have their prescriptions served at the Clinics where these doctors employ unqualified personnel to do illegal dispensing with impunity.

It is true that today the profession of pharmacy has widened in its concept and scope of practice. Pharmacy as a science-based profession offers many opportunities for those who care to practise it with dignity, but the traditional place of the pharmacist is in the pharmacy, or more commonly, the chemist-shop; and the community cannot do without it. It is here that medicines are compounded and sold, prescriptions are filled up and served. But it has to be a model pharmacy that commands respect and attracts patrons. An increasingly well-informed public are seeking more and more advice from the pharmacist in the chemist shop about this and that O.T.C. preparation. Also, the immediate instinct of a person who feels slightly out of sorts about her health is to prescribe a medicine for herself, otherwise known as self-medication. And the person to whom she will go for immediate advice is the white-coated man in the Chemist Shop because he knows all about the O.T.C. Products. The patron also knows that it is only the white-coated man who can tell her that self-medication is unadvisable in her particular illness and that a visit to the doctor is indicated.

Drugs are coming out of the manufacturing houses in thousands and it is becoming well nigh impossible for doctors to cope with their complexities, being busy as they are with other aspects of patient care. His immediate ally in this respect is the pharmacist who, by his training and competence can advise the former on the exact nature of the drug he wants to use. The pharmacist thus advises the doctor on the workings of the drug and instructs the patient on the intentions and wishes of the doctor on the correct use of the prescribed medicine. This dual role of the pharmacist between doctor and patient calls for continuing education and up-dating of his knowledge of drugs of which he alone is the expert. This is a very challenging role for the pharmacist if he is to justify his place in the health team for building the Nation. Undoubtedly in doing this the pharmacist requires the co-operation and understanding of both the doctor and the patient. It must be emphasized that the first post of duty for the pharmacist is in the Chemist Shop to ensure that both doctor and patient are properly served and drug products effectively distributed and not abandoned to non-professionals.

One other field quite new and an offspring of the pharmaceutical industry is medical representation. Here also, the pharmacist who has the urge to fulfil himself as an effective person has all the chance to succeed. He has to have a thorough knowledge of drugs like his counterpart in the Chemist-Shop to be able to convince prospects whom he is detailing. There is no field much more

exciting in the application of drug knowledge in the whole gamut of avenues open to the pharmacist than in the medical representation and detailing.

Further, there is hospital pharmacy where a good number of pharmacists are employed in this country. It affords a very fascinating experience and the field assures security of tenure for those who find the uncertain elements of private professional life unexciting.

Also, the fledging pharmaceutical industry is offering openings to pharmacists who have the flair for technology and laboratory practice and, with the present growth trend of the industry, more pharmacists would be expected to opt for this field of national service. Food technology, the manufacture of household hygiene products and cosmetology are all areas in which the pharmacist may easily engage himself in the service of Ghana.

Science-based pharmaceutical education today has pushed far and wide the horizons of pharmacy and made available new vistas for the pharmacist to occupy himself.

In the academic and research fields the pharmacist with an academic turn of mind can be of enormous benefit to the Nation. The impact of science on pharmacy has created chances for pharmacologists, chemists, biochemists, pharmacognosists and microbiologists to make their contribution by adding to the existing fund of scientific and pharmaceutical knowledge through research efforts. In the flora and fauna of this country there is a vast reservoir of virgin material waiting to be tapped and with a great deal of pluck and some luck any reseacher should be able to put the name of Ghana on the world map. The achievements of such an enterprise would be emotionally rewarding and the financial gains quite ample. There is also the added satisfaction of seeing your human products coming out of school to augument the pharmaceutical manpower force.

Scientific pharmacy today has shifted the context of pharmaceutical practice, offering much wider as professional entities. This is a challenge we must accept.

RE-INSTATEMENT OF PHARMACISTS

In Vol.1 No.1 of the Journal, we published a list of some Pharmacists whose names were removed from the register of membership of the Society and whose certificates of registration as Pharmacists were consequently cancelled by the Pharmacy Board as published in the Ghana Gazette No.22 of 9th March, 1973.

Since the publication, the under-mentioned persons have fulfilled their obligations and have therefore had their membership of the Society restored:—

Acheampong, P. A.
Acquah, M. C.
Adai, G. K.
Adams, E. B.
Akoto, J. W.
Akuetteh, E. D.
Anderson, J. L.
Armah, G. T. A.
Atta-Nyamekye, J.
Awuah, J. Y.
*Ben-Smith, A.
Demor, A. A.
*Fiagbe, N. I. Y.
Hutton, Fredrick
Kissi-Asomani, R. B. K.
Laryea, J. A.
Laryea, J. H.
Nyarko, A. M. D.
Odoi, Fred A.
Quartey, W. O.
Sampong, A. G. E. M.
Sencherey, H. K.
*Tekper, Stephen K.
Temeng-Forson, A.

*With the exception of the three names so marked, the re-instatement of these members appeared in the Ghana Gazette No.45 of 8th June, 1973.

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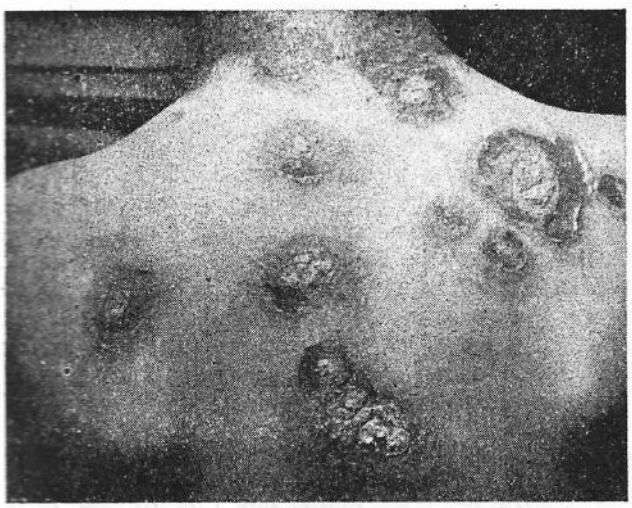
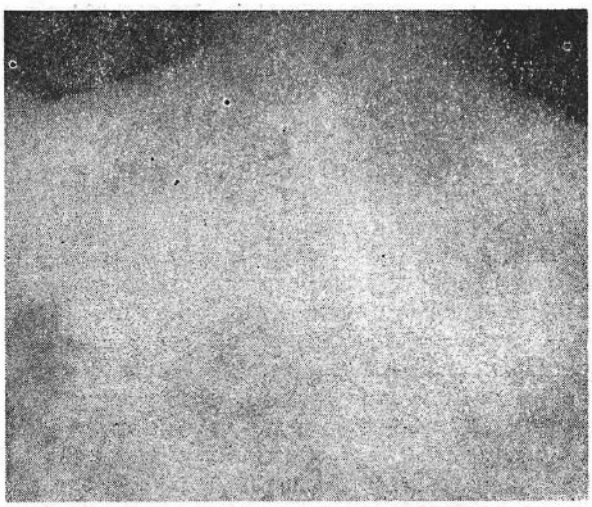


1. Impetigo caused by staphylococcus aureus on chest and back of a four-year old boy.



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THE PRACTICE OF THE PROFESSION OF PHARMACY IN GHANA AS I SEE IT

By: PROF. D. K. SANTRA
UNIVERSITY OF SCIENCE AND TECHNOLOGY

Is Pharmacy a Profession?

Perhaps the question may appear trivial, because it is generally accepted throughout the world that "Pharmacy" *is* a profession. However, in view of the fact that doubts had been raised in this country as to whether Pharmacists should be accorded recognition as belonging to a "Profession," such a question becomes quite pertinent, a question which must be faced squarely and answered honestly.

In an earlier communication — published in the *Journal of Medical & Pharmaceutical Marketing*, 1972, 1 (2), 18 — 19, I have attempted to do just that. The reader is therefore recommended to peruse the above communication for a critical appraisal of this crucial question.

One of the established characteristics of professional organisation is that it prescribes an approved educational qualification which a person must possess before his acceptance as a member of the profession. It is therefore imperative that the pharmaceutical organisation must prescribe, unequivocally, its educational requirements acceptable as the minimum for registration as a Pharmacist. It must resist all attempts that may be made — from within and without the profession — to dilute, undermine or downgrade this requirement. I mention this because of our recent mortifying experience regarding the introduction of the Diploma course in Pharmacy, which fortunately for the profession, was short-lived. Had this category of training been allowed to remain as a permanent feature in the Pharmaceutical horizons of this country, it would have resulted in great damage to the profession as a whole.

'Pharmacist' Defined

Legal jargon have always been a source of amusement for me — this is how the Pharmacy Act (Section 8) defines a pharmacist.

"....A person holding a current certificate of registration, not being a suspended certificate....". I should have thought that the phraseology used in the statutory definition would have reflected the intrinsic nature of Pharmacy as a Science and a Profession.

Implications of Pharmaceutical Practice

As an important wing of the health professions, pharmaceutical services affect the public which pays for these services. First, it affects the public directly through retail and hospital pharmacy, where the order for medicaments prescribed by the physician is dispensed, and where preformulated proprietary remedies recommended by attending physician are also served. These operations raise some important questions. From close scrutiny of doctors' prescriptions it would soon be apparent that many of these indicate standard routine formulations and would therefore, for economic reasons, warrant bulk manufacturing. Now, the question is ,are facilities being provided in all our major hospitals for carrying out bulk manufacturing of such formulations? If not, I suggest, that we are making the most inadequate and therefore uneconomic use of the expertise and services of the pharmacist, who has been trained at the University for at least four years at public expense.

Another question arises in my mind and out of my observation that the bulk of the pharmacist's working time is taken up in lifting patent remedies and proprietary products off the shelf and handing them over to the patient, after obliterating the manufacturer's label with one of his own, made out according to the prescriber's instructions. I suggest that some of these proprietary products are so simple that they can be formulated on the spot or bulk manufactured by a qualified pharmacist, from raw materials. For example, non-staining iodine ointment, emulsion of benzyl benzoate, etc., need not be imported as proprietary products. I suggest that, only the raw materials required are imported—namely iodine, benzyl benzoate and triethanolamine etc., and the medicinal products formulated in the retail and hospital pharmacies. This would result in substantial savings in foreign exchange and make the employment of a highly trained pharmacist more economical to the employer and more satisfying to the employee.

Pharmaceutical service also affects the public indirectly through

1. Importation
2. Manufacturing and distribution of drugs.

This was first presented at the 1973 Easter Refresher Course for Pharmacists organised jointly by the Pharmaceutical Society of Ghana and the faculty of Pharmacy, University of Science & Technology, Kumasi at the University.

Let us examine in what manner the public is affected in these operations.

Importation

We have often seen news reports regarding useless or questionable remedies being fraudulently imported into this country. At the risk of using a hackneyed cliche that 'all that glitters is not gold' I must most emphatically impress upon my Ghanaian friends that they must discard the assumption that just because a drug has been "imported" it must of necessity be effective therapeutically. Well then, how does one ensure what is being imported is not spurious or useless? The answer is really simple—in two words *quality control.* Before an item of medicament is imported, random samples of it must be subjected to stringent tests to verify the claims by the foreign manufacturer. Even if the import licence is given, surprise checks and seizures of samples by inspecting pharmacists at the ports of entry must be effectively enforced.

Manufacture

The same applies to home-grown products too. It should be made impossible for local manufacturers to market their products until these have passed similar stringent tests, laid down by the Pharmacopoeias or in the provisions of the Pharmacy Act. I am aware that some of this work is at present being carried out by the Government Chemical Laboratory and the National Standards Board. But I should like to propose that a central Drugs Control Laboratory is established with modern equipment and highly trained pharmaceutical staff, to undertake routine analysis of all samples of imported, or locally manufactured medicaments, for certification. This laboratory must be supported by an inspecting staff who shall have statutory powers of entry into premises engaged in the manufacturing and distribution of drugs, and power to inspect any consignment containing medicaments and to seize samples for subsequent testing by the central drug control laboratory. Certification by this laboratory must have statutory sanction, so as to enable the inspecting staff confiscate any medicinal product not displaying the official certification on the label.

This brings me to a glaring lacuna in the provisions of the Pharmacy Act. No specifications regarding the qualification and experience of inspecting staff have been clearly indicated. I suggest that detailed provisions be made for three categories of Pharmacists to be responsible for quality control and its enforcement.

1. Retail sale inspection and collection of samples off the shelf and at ports of entry.

2. Inspection of manufacturing premises for enforcing compliance with statutory requirements regarding

   (*i*) personnel employed

   (*ii*) equipment used

   (*iii*) waste disposal measures

   and (*iv*) seizure of samples for testing.

3. Pharmacists specifically engaged for the testing of samples seized or submitted by the importer and local or foreign manufacturer.

In this connection, it may be mentioned, that neither in the Act nor, in the published regulations thereunder, if any, do I find any provision made regarding the specification of personnel, equipment and premises suitable for manufacturing, operations. Since there are different categories of drugs (listed under different schedules in the Act), their manufacture, process control, storage and distribution would require special operations and therefore demand special qualification and experience in personnel handling these operations. Also standard minimum equipment and physical plant for manufacture of each class of drugs or dosage forms must be statutorily prescribed for compliance by the manufacturer. All that is mentioned in the Act is that the manufacturer must comply with requirements of "accommodation, fixtures, equipment and other physical attributes". But I have not seen in any published regulations under the Act *any* specifications pertaining to these requirements. I propose that schedules be drawn up prescribing these specifications. The specifications prescribed by the Indian Government under its Drugs Act and Rules may be used as a model to design our own requirements in Ghana.

Professional Training

The Pharmacy Board under the 'Act' has the final authority to prescribe/approve minimum educational requirements for all kinds of Pharmaceutical services and operations. I am afraid, the Board has not sufficiently exercised its authority in regulating educational matters. Due to vacillation and confusion as to what really constitutes the minimum qualification for registration the Board was bamboozled into approving and introducing a Diploma Course. As I have said earlier, it is fortunate that good sense ultimately prevailed and now the course has been abolished. In this connection, perhaps it is needless to emphasize that the decisions of the Pharmacy & Poisons Board or of the Ghana Pharmaceutical Society should not be undermined by dissenting members seeking to curry favour with one group or the other in the profession.

Research and Development

Finally, the profession of pharmacy makes a positive contribution to the welfare of the community in using their scientific personnel to search for new therapeutic agents. I suggest that this effort be directed intensively to natural products and to indigenous raw materials for the purpose of import substitution. Some very useful work has already been initiated at the Faculty of Pharmacy. Indigenous starches, gums and fats have been found to be adequate substitutes for imported gum acacia, potato starch, cocoa-butter etc. Similarly, there is no need to import plant constituents, when the same constituents can be extracted from indigenous natural sources, such as, Reserpine from local species of *Rauwolfia.*

Finally, the climate of West Africa is suitable for introduction of exotic species. For example, Ceylon cinnamon has been successfully introduced into Ghana and can meet all our requirements of cinnamon leaf oil (eugenol), cinnamon bark oil (cinnamaldehyde) and camphor (from root bark), besides making the importation of cinnamon bark powder as a spice unnecessary. Experiments conducted at the Faculty of Pharmacy have shown the introduction of exotic species a distinct possibility for a profitable venture in Ghana.

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CODE OF ETHICS OF THE PHARMACEUTICAL SOCIETY OF GHANA

PREAMBLE

The primary obligation of pharmacy is the service it can render to the public in safeguarding the preparation, compounding, dispensing supplying and the storage of drugs and other medical products. To meet such obligation, principles of professional conduct for Pharmacists must of necessity be established.

Every pharmacist should not only be willing to play his part in giving such a service but should also avoid any act or omission which would prejudice the giving of the service or impair confidence in and respect for pharmacists in general.

The practice of pharmacy requires knowledge, skill, and integrity; therefore, the laws of the nation restrict the practice of pharmacy to persons with special training and registrable qualifications.

Article 1: The pharmacist purchases, compounds and dispenses only drugs of good quality.

Article 2: The appearance of the premises should reflect the professional character of pharmacy, that is to say, the pharmacist keeps his pharmacy clean, neat, and sanitary, and well-equipped with reference books, accurate weighing and measuring devices and other apparatus suitable for the proper performance of his professional duties.

Article 3: The pharmacist is a good citizen and upholds and defends the laws of the nation; he keeps himself informed on pharmacy and drug laws, and other laws pertaining to health and sanitation and co-operates with the enforcement authorities. He should not engage in any activity that will bring disrepute to the profession and should expose, without fear or favour, illegal or unethical conduct in the profession.

Article 4: The dispensing of medicinal products or professional services of a pharmacist should not be advertised directly or indirectly, except that

(a) the terms "dispensing chemist," "Pharmacist" " Pharmaceutical Chemist," or "Druggist" may be used simply as a personal description on the facia or other appropriate position on a pharmacy, on labels or on business stationery, and in telephone or other directories;

(b) a discreet announcement in the local press may be made of the opening of a new pharmacy or the transfer of an existing pharmacy to a new address, or change in opening hours.

Article 5: An announcement may be made as to dispensing services available in a locality. Normally any such announcement should be issued only by a pharmaceutical organisation agreed upon by local pharmacists.

Article 6: Methods of sales promotion designed to encourage the general public to purchase or obtain more of a medicinal product than they may reasonably require should not be used.

Article 7: Display material for the sale to the public of medicinal products or medicinal appliances which is undignified in style should not be used.

Article 8: A pharmacist should not allow others to use his name, qualifications, address or photograph in connection with the distribution to the public of any medicinal product.

Article 9: When premises are registered and opened as a pharmacy a reasonably comprehensive pharmaceutical

service should be provided. A pharmacist should not refuse reasonable request to supply pharmaceutical products or provide services in an emergency.

Article 10: A pharmacist should not supply to any member of the public any substance, medicinal product or medical appliance which the pharmacist knows or has reason to believe is intended to be used in a manner which would be detrimental to health, or whose quality he has reason to doubt.

Article 11: The pharmacist willingly makes available his expert knowledge of drugs to other health professions.

Article 12: The therapeutic efficacy of prescriptions should not be discussed with patients or others in such a manner as to impair confidence in the prescriber.

Article 13: A pharmacist who has accepted a prescription for dispensing will dispense the prescription exactly in accordance with the prescriber's wishes and, in particular, will not (except with the approval of the prescriber or in an emergency) substitute any other product for a specifically named product even if the pharmacist believes that the therapeutic effect and quality of the other product are identical.

Article 14: A pharmacist should not recommend a medical practitioner or medical practice unless so requested by a member of the public seeking medical advice

Article 15: While the closest professional co-operation between the pharmacist and the Medical Practitioner is desirable a pharmacist should neither.

(a) have business association with a Medical Practitioner in the sense of either of them having a financial interest in the professional work of the other,

nor

(b) so conduct himself as to lead patients or members of the public reasonably to believe that there is such an association.

Article 16: The pharmacist refuses to prescribe or to diagnose; he refers those needing such service to a properly licensed practitioner. In an emergency and pending the arrival of a qualified practitioner, he applies such first-aid treatment as is dictated by humanitarian impulses, scientific knowledge and good judgement.

Article 17: A pharmacist should at all times be ready to help other pharmacists in providing an efficient pharmaceutical service.

Article 18: pharmacists should avoid descriptions which are either inaccurate or which draw an invidious distinction between them or their pharmacies.

Article 19: The pharmacist keeps himself informed regarding professional matters by reading current pharmaceutical, scientific and medical literature, attending seminars and by other means.

Article 20: The pharmacist adheres to fair business practices, meets his obligations promptly and fulfils his agreements and contracts.

Article 21: The pharmacist must proudly display in his establishment his own name and the names of other pharmacists employed by him.

Article 22: Any obstruction of the pharmacist in personal control of a pharmacy by the owner of the pharmacy business which results in failure to maintain a proper standard of conduct within that pharmacy will be regarded as failure on the part of the owner to observe a proper standard.

Article 23: Employment as the sole pharmacist should not be accepted by a pharmacist who is not able or required by his employer to perform the full duties of a pharmacist in charge of that pharmacy or which requires him to consent to unethical conduct, or whose remuneration, as judged by the Council of the Society, is not in conformity with current values.

Article 24: A pharmacist should join organizations which have for their objective the advancement of the profession of pharmacy, and he should contribute his time and money to enable such organizations carry on their work.

"...not only are the two primary pathogens, *Strep pneumoniae* and *H influenzae*, sensitive, but so are the secondary invaders such as klebsiella which often replace them after antibiotic treatment."[1]

"...clearly superior to either of the other treatments..."[2]

"...indeed one cannot remember any other drug performing so well..."[3]

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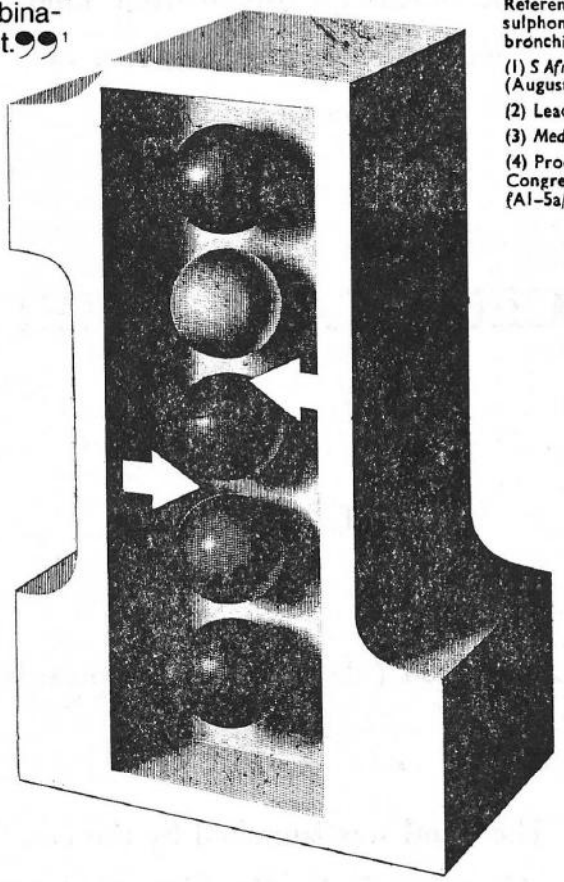

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References to the role of the trimethoprim: sulphonamide combination in treating bronchitis and urinary infections.

(1) *S Afr med J.* (1970) **44**, Supplement (August) 12.

(2) Leading Article *Brit med J.* (1969) **1**, 525

(3) *Med J Austr* (1971), **1**, 526

(4) Proceedings of the V International Congress of Chemotherapy, (1967), **1**, 1. (A1–5a/3)293.

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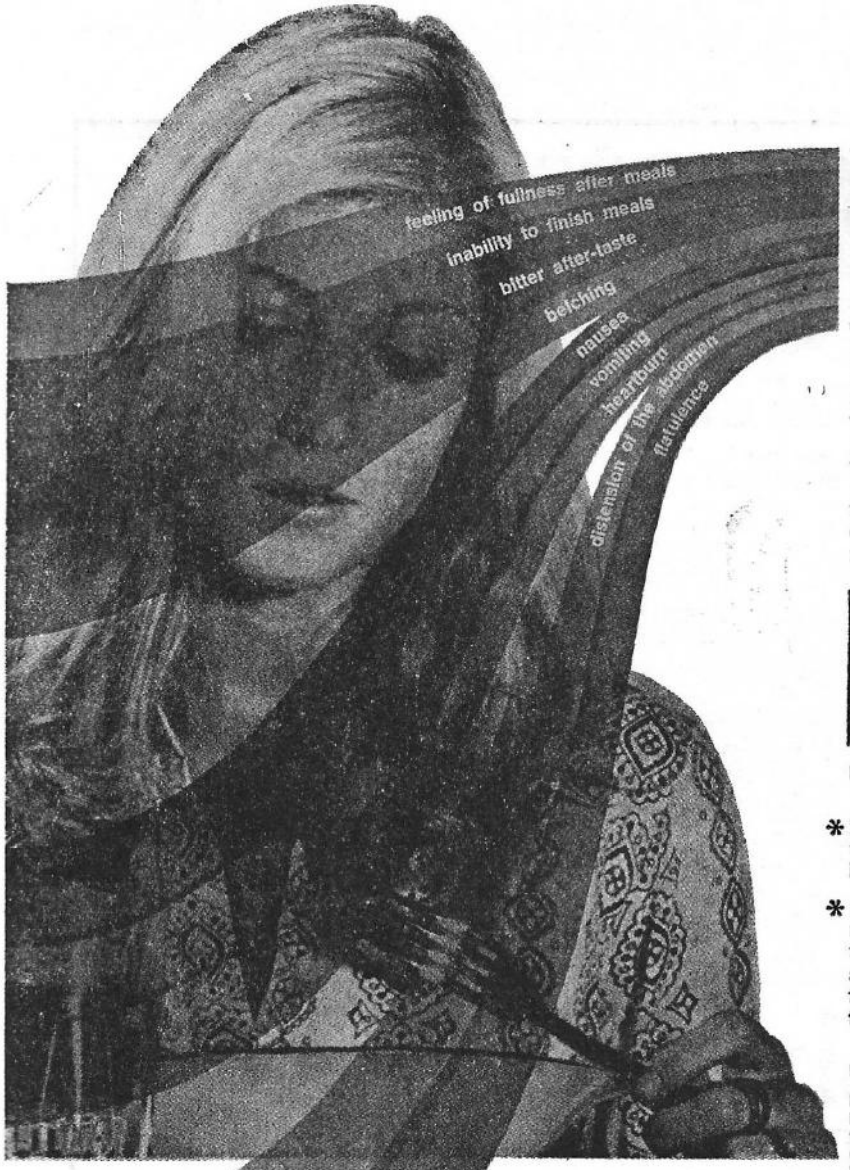

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BIBLIOGRAPHY

1. Rhind J.A., Watson L.: **Brit. med. J., 1968, 1, 32.**
2. Capper W.M. et al.: **Lancet, 1967, 1, 413.**
3. Johnson A.G.: **Brit. med. J., 1971, 2, 25.**
4. Johnson A.G.: **Gut, 1971, 12, 158.**

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QUALITY EVALUATION OF SOME DRUGS IN THE GHANA MARKET

By

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Government Chemical Laboratory, Accra

SUMMARY:

Systematic sampling of drugs from the Government Regional Medical Stores was conducted between the months of July and December, 1972.

Samples of drugs were periodically sent to the Government Chemical Laboratory for analysis. Results of the analysis of the drugs indicated that there could be an appreciable number of sub-standard drugs stored in our Medical Stores.

Suggestions are made for, (1) proper storage of pharmaceuticals in the medical stores, (2), institution of systematic quality control programme in the country and, (3), long term stability study on drugs circulating in the country.

In July, 1972, the Government Chemical Laboratory enunciated a quality control programme on drugs stored in the main Regional Hospitals in the country. Specific sampling scheme was drawn up and samples of selected classes of drugs were sent to the Laboratory for testing.

The following classes of drugs were selected for testing:—

1. Penicillins
2. Tetracyclines
3. Antimalarials
4. Analgesics and Antipyretics.

The results of the analysis of these drugs were communicated to the various Regional Medical Stores.

The introduction of a drug quality control programme in the country is necessitated by the following prevailing factors:

i. Ghana imports almost all her drug requirements from various countries throughout the world.

TABLE I

SCHEDULE FOR TESTING OF DRUGS FROM REGIONAL MEDICAL STORES TEMA, ACCRA, KUMASI KINTAMPO

Name of Drug	*Estimated No. of brands in stores*	*Estimated No. of formulation types*	*Total No. of samples from stores*	*Date Samples collected*	*Date analysis performed*
1. Penicillins	3	3	63	3rd July	7th July
1. Penicillins	3	3	63	3rd July	7th July —Aug.
2. Tetracyclines and Chloramphenicol	3	4	84	31st July	14th Aug.— 4th Sept.
3. Antimalarials	4	3	84	20th Aug.	11th Sept.— 7th Oct.
4. Antipyretics and Analgesic (A.P.C. & Codeine Co.) ...	4	2	56	24th Sept.	14th Oct.— 4th Nov.

ii. Drugs certified to be of high quality in a drug manufacturing country may not remain potent and safe after being transported to another country.

iii. The high humidity, sunlight and high temperatures in the tropics could accelerate the degradation of many drugs.

iv. Ghana wastes money by using decomposed and inefficacious drugs on her people for medical treatment.

EXPERIMENTAL

All the drugs sampled from the Regional Medical Stores were analysed using the laboratory facilities in the Government Chemical Laboratory, Accra.

2.2 PROCEDURE

Samples of the selected drugs were sent from the various Regional Medical Stores to the laboratory in a prescribed systematic manner as shown in the table I.

2.2.2.: SCREENING TEST:—

Thin layer chromatography was used to screen samples for other degradatory products.

2.2.3 ASSAY OF SAMPLES

The methods used for the evaluation of the samples examined under the quality control programme are as indicated below:

i. **Penicillins:** Standard Laboratory Methods: Iodometric and Spectrophotometric Methods (for ampicillin) (U.V. absorption methods used at wavelength of 320 mu, in Copper Sulphate Buffer solution at pH 5.2).

ii. **Streptomycin:** Standard Laboratory method — Thin layer chromatographic and spectrophotometric methods were used. Solution:— 1N — NaOH plus Acidic ferric Ammonium sulphate (5% in $1NH_2SO_4$), Wavelength:—540mu.

iii. **Tetracyclines:** Thin layer chromatographic and ultraviolet absorption methods were used. Solvent: O.1NHCl. Wavelength:— 356.5 mu.

iv. **Chloramphenicol:** Standard Laboratory Method — Ultraviolet Spectrophotometric method. Solution in 95% Alcohol and using wavelength at 271 mu.

v. **Antimalarials:** Standard Laboratory Methods:— Ultra-violet spectrophotometric methods were used for the various antimalarials — chloroquine, amodiaquine, pyrimethamine and paludrine (U.V. absorption in $O.1N\ H_2SO_4$).

vi. **Analgesics and Antipyretics:** Samples analysed included Codein Co. and A.P.C. Gas chromatographic technique was used: Gas chromatograph — Varian Model 1700.
Carrier-gas:— Nitrogen (flow rate) 30 ml/min.
Detector-Flame Ionization detector using Hydrogen gas (flow rate: 30 ml/min) and air 300 ml/min.
Stainless Steel Column: 3% SE-30 on Varaport 30 (5'x⅛").
Internal Standard: phenylbutazone.

***N.B.** Standard Laboratory method refers to a method of analysis found to be suitable for routine drug analysis.

RESULTS

Detailed analytical results of the samples examined during the quality control programme are as shown in Tables II and III:

The results indicate that 50.0per cent of the penicillins analysed were not within official limits. Most of these were in syrup form. 34.6 per cent of the Tetracyclines and 41.9 per cent of the Antipyretics-Analgesics tested were also found to be unacceptable. All samples of penicillins and tetracyclines found below official standards were found to contain degradatory products.

4.0 DISCUSSION

It is obvious from the results of the tests performed on the samples examined during the quality control programme that the medical stores in the country are storing fairly high percentage of drugs which are below official standards. Thin layer chromatography revealed in many instances that the penicillins and tetracyclines were broken down into degradatory products. Some Aspirin, Phenacetin and Caffeine and Codeine tablets analysed were brownish in colour and smelt of acetic acid. This could be an indication of decomposition. The browning of the tablets of A.P.C. and Codeine Compound might be due to interaction of the Nitrogen containing constituents with the excipients, especially lactose.

Degradatory products from Tetracyclines could be dangerous to health as the epi-anhydrotetracy-

Table II

DRUGS ANALYSED DURING QUALITY CONTROL PROGRAMME

Drug	*No. of Samples*	*No. of drugs found Unacceptable*	*Found Not Acceptable*
A. Antibiotics			
i) Penicillins	24	12	50.0%
ii) Streptomycin	68	8	11.8%
iii) Tetracyclines	26	9	34.6%
iv) Chloramphenicol	11	2	18.2%
B. Antipyretics—Analgesics	17	7	41.9%
C. Antimalarials	25	3	12.0%

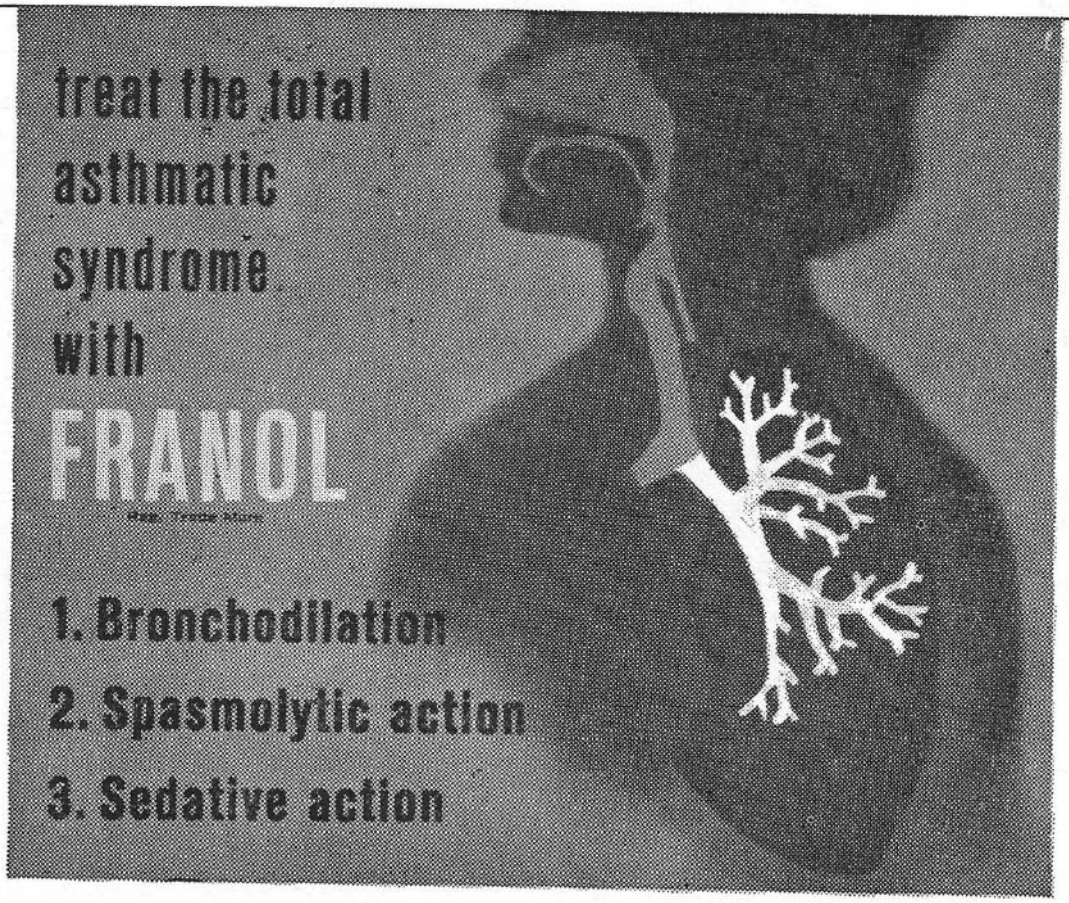

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Table III

SAMPLES FOUND UNACCEPTABLE

Drug	*Batch Nos. of Samples*	*Content of Label claim* %	*Expiry Date*
Tetracyclines	131057	60.47% of label claim	
	112067	134.53% of label claim	Jan. 6 1974
	121370	72.40% of label claim	June 1973
	10350042	113.24% of label claim	Aug. 1974
	118069	82.07% of label claim	March 30, 1974
	24037	60.61% of label claim	March 1974
	2720871	115.53% of label claim	Aug. 1974
	—	86.44% of label claim	March 30, 1974
	—	86.10% of label claim	—
Chloramphenicol	1024/9	98.05% of label claim (Powder caked, unsuitable for injection)	Sept. 1974
	718356/2	112.18% of label claim	April, 1973
Streptomycin Sulphate ...	1077/2	95.50% of label claim	Oct., 1971
	1096/1	94.94% of label claim	Oct., 1971
	1100/2	90.83% of label claim	Oct., 1971
	1126/3	80.32% of label claim	Nov., 1971
	1126/4	83.47% of label claim	Nov., 1971
	1126/5	90.99% of label claim	Nov., 1971
	1152/1	79.51% of label claim	Dec., 1971
	1177/3	94.58% of label claim	Jan., 1972
Penicillins	15485	4.19% of label claim	May, 1973
	3963	Benzyl Penicillin 100.52% Procaine Penicillin 32.50%	
	A 90240.3	Benzyl Penicillin 68.91% Benzathine Penicillin 25.00%	Jan. 1975
	B 90239-2	Benzyl Penicillin 68.07% Beznathine Penicillin 26.69%	Jan., 1975
	220397	Phenoxymethyl Penicillin 33.16%	Sept., 1975
	—	Procaine Penicillin 32.57% Benzyl Penicillin 100.52%	—
	A 90240-2	Total Penicillins 54.83% Benzathine Penicillin 22.38%	Jan. 1975
	0782	Phenoxymethyl Penicillin 54.83%	—
	247c-059	Total Penicillins 75.25% Phenoxymethyl Penicillin 8.71%	Jan., 1975
	B/90239/1	Benzathine Penicillin 22.45% Total Penicillins 75.24%	Jan., 1975
	A/9024/3	Benzathine Penicillin 24.47% Total Penicillins 65.55%	Jan., 1975
	A-90239-1	Benzathine Penicillin 22.38% Total Penicillin 56.60%	Jan., 1975
Analgesics Antipyretics ...	044c	Aspirin 104.23% Phenacetin 92.93% Caffeine 95.31%	—
Analgesics Antipyretics (*cont.*)	BH-004c	Aspirin 106.24 Phenacetin 98.42 Caffeine 114.89	—
	BH 094	Aspirin 105.82 Phenacetin 80.00 Caffeine 100.77	—
	BH 104c	Aspirin 106.92 Phenacetin 80.00 Caffeine 100.77	—
	174c	Aspirin 106.57 Phenacetin 87.94 Caffeine 106.80	—
	BH 086c	Aspirin 96.10 Phenacetin 89.15 Codeine phosphate 97.50	—
	BH 136	Aspirin 92.45 Phenacetin 91.93 Codeine phosphate 96.80	—

clines are known to cause kidney damage.[1,2]

The rates of degradation of Tetracyclines,[3] Acetylsalicylic acid[4,5] and penicillins [6,7] are accelerated by the presence of moisture. The beta-lactam ring of the penicillin is easily broken up under moist conditions. For penicillins, this could mean reduction in potency.

The relatively high percentage of drugs found not acceptable could thus be due to the following factors:

i) Improper storage: Most of the Medical Stores do not store the items analysed under cool conditions.

ii) Unsatisfactory formulation of the products. This point was very much evident in the samples of penicillin and tetracyclines analysed. Formulations in aqueous suspension rated high in the number of drugs found unacceptable.

iii) The rated expiry dates of the products are not true reflection of the actual stability of the products under tropical conditions.

5.0 PROPOSALS

In the light of the findings from the drug quality control programme, the following measures need to be taken in the country as soon as possible.

i) STORAGE:

All pharmaceuticals meant to be kept in 'cool' places e.g. antibiotics, steroids etc., are to be stored in air-conditioned rooms. It is better for government drug stores and pharmaceutical houses to spend money to instal air-conditioning units than to have the lives of people endangered through the use of degradated drugs. The initial cost in such an investment would be outweighed by the long term benefits.

ii) QUALITY CONTROL TEST

Since Ghana imports most of her drug requirements, it is essential that drugs brought into the country in large quantities should be sampled and tested within say one month on landing at the ports of Ghana.

The Ministry of Health may institute this measure on her bulk purchases. Hence, this exercise could be initially concentrated on Ministry of Health purchases. The sampling could be limited to *Antibiotics*, *Steriods* and *Analgesics*. Samples of the drugs could be sent to the Government Chemical Laboratory for testing.

This exercise should go alongside with the already established drug testing programme in the medical stores.

iii) SMALL SCALE DRUG QUALITY CONTROL IN REGIONAL HOSPITALS

To achieve a comprehensive quality control of drugs being issued from our hospitals, the regional hospitals could be equipped with simple equipment for drug analysis. The Drug Section of the Government Chemical Laboratory could be asked to help set up such small laboratories.

iv) Drug Stability projects as carried out in the Government Chemical Laboratory should be supported by Ministry of Health and other interested Institutions like the National Standards Board.

6.0 CONCLUSION:

The drug quality control exercise on drugs from the medical stores has revealed that there could be a high percentage of drugs which are below accepted standards circulating in the country. High temperatures and humidity of our climate, and unsuitable formulations of drugs are likely to contribute to this situation. To arrest deterioration of drugs and importation of sub-standard drugs, it is necessary for the government to ensure proper storage of drugs, institute systematic quality control of drugs and initiate a long term study into the problem.

ACKNOWLEDGEMENT:

The success of the first phase of the programme was greatly helped by the prompt response from the Pharmacy Division of Ministry of Health and the Pharmacists in charge of Regional Medical Stores. The efficiency and the high productivity of the Technical staff in the Drugs Section of the Government Chemical Laboratory also contributed a great deal to the completion of the programme.

REFERENCES:

1. Clive D. J., Quart, Rev. **22**, 439 (1968)
2. Frimpter G. W. et al, J. Amer. Med. Ass., **184**, 111 (1963)
3. McCormick J. R. D., J. Am. Chem. Soc. **79**,2849 (1957)
4. Leeson L. J. and Mattocks A. M., J. Amer. Pharm. Ass. (Sci. Ed) **47**, 329 (1958)
5. Mital H. C., Pharmaceutica Acta Helvetiae, **44**, 170 (1969)
6. Benedict, R. G. et al J. Bacteriol, **49**, 85 (1945)
7. Finholt P., J. Pharm. Sci. **54**, 387, (1965).

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PROC

THURSDAY 2ND AUGUST

5.30 p.m. Official Opening: By the Chairman of the N.R.C.
Opening of Exhibition: By the Commissioner for Health.

7.00 p.m. Cocktails: By Courtesy of the National Council of the Society, at the Fore-Court, State House.

FRIDAY 3RD AUGUST

8.30 a.m. Registration of Conference Participants.

9.00 a.m. *Lecture:* **"Potentials of Medicinal Plants in Ghana"** by Prof. D. K. Santra Ph.D. Head of Dept. of Pharmacognosy, Faculty of Pharmacy, U.S.T., Kumasi.

Chairman: Prof. A. N. Tackie, B.Pharm., Ph.D., MPSG., Executive Chairman, Council for Scientific and Industrial Research, Accra.

10.15 a.m. Coffee Break

10.30 a.m. First Business Session:
Hon. General Secretary's Report.
Hon. Treasurer's Report.
Appointment of Working Committees.

2.00 p.m. Second Business Session.
Open Forum.

4.15 p.m. Tea Break and Visit to Exhibition.

5.00 p.m. *Talk:* **"The Challenge of Pharmacy in Developing Countries"** by the Guest Speaker, Prof. Gabriel Osuide, B.Pharm., Ph.D., MPS., Head of Dept. of Pharmacy & Pharmacology, Ahmadu Bello University, Zaria, Nigeria.

Chairman: Mr. V. K. Aidoo, MPSG., M.I.Pharm.M., President, Pharmaceutical Society of Ghana.

SATURDAY 4TH AUGUST

9.00 a.m. *Symposium:* **"Towards Improved Pharmaceutical Service in Ghana."**

Panelists:
1. Miss Jane R. Onny, B.Pharm., MPSG., GIHOC Pharmaceutical Division, Accra.
2. Mr. F. Addai-Gyambrah, B.Pharm., MPSG., Pharmacy Dept. Komfo Anokye Hospital, Kumasi.
3. Mr. J. K. Opoku-Acquah, B.Pharm., MPSG., Kingsway Chemists Div. of U.A.C. of Ghana Ltd., Accra.

Chairman: Mr. T. E. C. Sagoe, Ph.C., MPSG., M.I.Pharm.M., Chief Pharmacist, Ministry of Health, Accra.

10.30 a.m. Coffee Break and Visit to Exhibition.

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RAMME

11.00 a.m. Presentation of Papers:

i) **"Influence of Formulation of Oil-water Products on the Biological Availability of incorporated Drugs (Preservatives)"** by G. H. Konning, M.Pharm., Ph.D., MPSG., Dept. of Pharmaceutics, Faculty of Pharmacy, U.S.T., Kumasi.

ii) **"Antibacterial Activity of Some Ghanaian Chewing Sticks"** by C. Buadu, B.Pharm., Ph.D., MPSG., Dept. of Pharmaceutics, Faculty of Pharmacy, U.S.T., Kumasi.

iii) **"Physico-chemical Studies of Samples of Cannabis Sativa (Indian Hemp) in Ghana"** by J. Y. Binka, B.Pharm., M.Sc., MPSG., Government Chemical Laboratories, Accra, and S. Y. Bediako-Donkor, B.Pharm., MPSG., Government Chemical Laboratories, Accra.

iv) **"Problems Associated with the Preparation and use of Intravenous Fluids"** by J. Ocran, B.Pharm., Ph.D., MPSG., Dept. of Pharmaceutical, Faculty of Pharmacy, U.S.T., Kumasi.

Chairman: Prof. E. A. Gyang, B.Pharm., M.Sc., Ph.D., MPSG., Ag. Dean, Faculty of Pharmacy, U.S.T., Kumasi.

12.30 p.m. Group Photograph.

2.30 p.m. Third Business Session:
Discussion of Constitution, Code of Ethics, and Bye-Laws, etc.

3.45 p.m. Tea Break and Visit to Exhibition.

4.00 p.m. Fourth Business Session:
Election of Officers.

Chairman: Prof. Gabriel Osuide, (Guest Speaker).

SUNDAY 5TH AUGUST

11.00 a.m. *Lecture:* **Radiopharmaceuticals** (Radio-Isotopes in Pharmacy) by K. Ocran, M.D., Ph.D., MPSG., Dept. of Medicine & Therapeutics, University of Ghana Medical School, Korle Bu, Accra.

Chairman: C. Buadu, B.Pharm., Ph.D., MPSG., Dept. of Pharmaceutics, Faculty of Pharmacy, U.S.T., Kumasi.

12.00 noon Visit to Exhibition.

2.00 p.m. Fifth Business Session:
Open Forum and Resolutions.

4.00 p.m. Tea Break

4.15 p.m. Special Groups Meetings

i) Hospital Pharmacists Group

ii) Industrial Pharmacists Group

iii) General Practice Pharmacists Group

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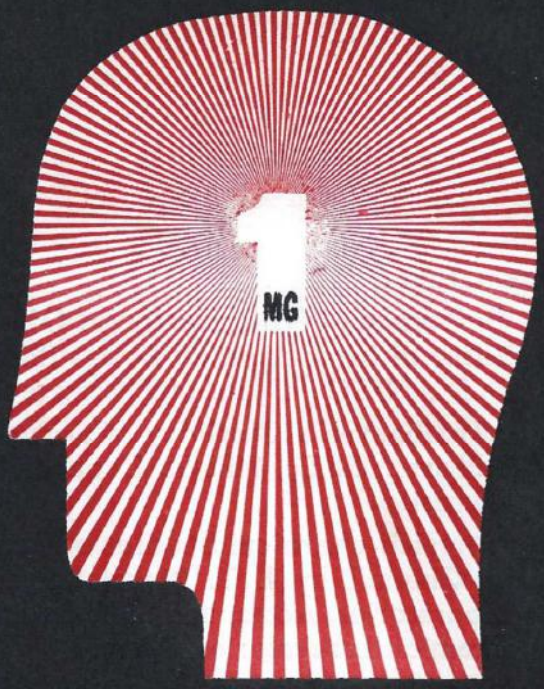

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By Henry E. Simmons

Henry E. Simmons, *MD, is director of the Bureau of Drugs at FDA. As FDA's top drug official, Simmons directs a force of 1,000 physicians, pharmacologists, chemists and pharmacists who test the safety and efficacy of drugs and medical devices. In addition to his medical degree, Simmons earned a MPH at Harvard in 1965. Previously, he was coordinator for health and medical affairs at Booz, Allen and Hamilton and a rheumatic disease and internal medicine consultant for Tuffts-New England Medical Center Hospitals. Currently, Simmons is also a clinical associate professor of medicine at George Washington University.*

I am constantly discouraged at the often biased, and occasionally frankly and intentionally misleading or exaggerated and alarming pronouncements made by members of the various camps in the generic brand name question.

In this issue we at the Food and Drug Administration have a unique opportunity and major responsibility. Being the world's largest repository of original and frequently unpublished information on drugs, we are in a unique position to know the facts on both sides. Unlike either side in this issue we achieve no financial gain regardless of which camp carries the day. With our responsibility for the public welfare, we and the public "lose" if either side does not produce drugs of uniformly high quality. We and the public "win" only if both generic and brand manufacturers consistently produce a quality product.

This then is the government's role in the public interest: to do everything within its power to assure that *all* drugs, generic and brand, made by big and small manufacturers marketed in this country are not only safe but effective; that they are honestly labeled and of the quality necessary to produce the intended effect; and that we maintain a surveillance system which will assure this quality continues once attained; should quality be found wanting at any time, appropriate steps are taken with necessary dispatch to correct the situation or stop production; and that users of drugs are provided sufficient information on drug quality so that the wisest therapeutic decisions can be made on behalf of the American people.

We recognize our responsibility, we accept our responsibility and are aware that the job cannot be done if the manufacturer does not also recognize and accept his responsibility. Fortunately, in general, drug manufacturers, large or small, generic and brand, have accepted their responsibility and are taking appropriate steps to fulfill it.

Given our responsibility, how do we meet it? What are the programs and resources of the federal government, specifically FDA, addressed to this area? To understand this you should first know something about this rapidly changing and growing FDA which I represent.

FDA Role

The FDA is now an agency of over 6,000 people with budget of over 150 million dollars. The agency's drug responsibilities are vested in the Bureau of Drugs. which is now a bureau of approximately 1,000 people backed by a field force of approximately 400 inspectors. The Bureau of Drugs is a highly technical bureau with approximately 120 physicians, 100 microbiologists, 50 pharmacists and pharmacologists, 50 chemists, plus statisticians, epidemiologists and other technical personnel. No new drug can be marketed in this country until teams of physicians, pharmacists, chemists and statisticians from the bureau have completed a thorough assessment of it.

Anyone wanting to place a new drug on the market must first develop data not only to show that it is safe and effective but also to demonstrate to FDA's satisfication that they have provided adequate controls to assure proper identification, quality, purity and strength of the new drug. This new drug application must include a list of all the components regardless of whether or not they undergo chemical change or are removed in the process; a statement of the quantitative composition of the new drug dosage form; a description of the facilities and personnel involved in the manufacture of the drug which is verified by factory inspection; acceptance specifications and test methods for the raw materials and new drug substance to assure uniformity from batch to batch; a description of the manufacturing process for the final dosage form in detail to include manufacturing process, packaging, labeling, etc; a description of adequate analytical controls, specifications and test procedures for the finished drugs; and stability studies to assure continued quality for the anticipated shelf life of the product. All of this data is carefully reviewed and approval is given only after all of the requirements are satisfied.

Whenever other manufacturers of chemically equivalent drug products want to place their product on the market, they must submit for FDA approval adequate data to demonstrate the equivalency of the product which then goes through the same

* *Adapted from presentation before the Califonia Council of Hospital Pharmacists in San Diego, California, September 30, 1972, and published in the December 1972 issue of the Califonia Pharmacist.*

review I have already described. All firms are bound by the same GMP regulations.

Drug Quality Programs

The Bureau of Drugs operates two large modern laboratories for drug research and methodology development and for drug analysis. These two analytical laboratories are the National Center for Antibiotic and Insulin Analysis in Washington and the National Center for Drug Analysis in St. Louis.

National Center for Antibiotic Analysis

The National Center for Antibiotic Analysis is a 150-man team working in a highly automated laboratory which is responsible for assessing the bioavailability of every antibiotic and for testing the potency, purity, stability and adherence to monograph of every batch of every antibiotic before it is marketed in this country. Prior to marketing, samples of every batch of bulk antibiotics and finished dosage form are submitted to FDA for analysis. The test methods and assays are developed by the firm in collaboration with FDA laboratories. Safety and identity tests are developed for the different antibiotics. These are published in the Code of Federal Regulations. The publication in the *Federal Register* includes standards of identity, strength, quality and purity, test methods and assays, labeling, the method of collecting samples from each batch and the number of samples needed. The drug is kept in quarantine while representative samples are submitted to FDA for analysis. Along with the samples, the firm submits data on the batch, such as formula and the firm's own results of assay. If the samples meet all of the requirements, the batch is certified by FDA and *only such* batches can be released for marketing in this country.

After the publication of the regulations for a particular dosage form, any qualified firm may decide to make the same antibiotic product. This is the so-called "me-too" product since it must meet all the requirements of the original product. Such a drug must be shown to be comparable to the original drug. Many dosage form "me-too" manufacturers and brand name manufacturers use bulk antibiotic ingredients from the same few bulk products. After the drug has shown comparability the firms must put batches on stability test and report every three months for a specified period of time and at least yearly thereafter. Any significant problem with the drug must be reported immediately to FDA. Additionally we collect post certification samples at randon from the market place as a further check on the continued quality of antibiotics.

Each year our National Center for Antibiotic Analysis receives approximately 20,000 samples for examination. The rejection rate is approximately one per cent. (These rejects cannot be marketed). Based on many years of experience with this program we are confident there is no significant difference between so-called generic and brand name antibiotic products on the American market. Therefore, you can feel secure that any antibiotic offered for sale in the U.S., regardless of whether it is brand or generic, has met the same high FDA standards.

A similar certification program is conducted for every batch of insulin produced in the U.S.

National Center for Drug Analysis

Another important drug quality program conducted by FDA is that conducted at the National Center for Drug Analysis in St. Louis. This 50-man laboratory is unique in having automated equipment for the analysis of a large number of tablets of a particular drug product. This permits single tablet assay which has produced some very important results, one of which was the digoxin problem which was highly publicized. During 1968, the National Center analyzed 443 samples of digoxin and found an overall defect rate of 2.5 per cent. The defects were primarily in content uniformity, that is, within the same batch, tablets varied from 60 per cent to 200 per cent of declared potency. It was determined that the manufacturing process itself was at fault in that proper mixing was essential. Further analysis of the data revealed that the major manufacturer holding 86 percent of the market had a zero defect rate and that the remaining manufacturers had a 37 percent defect rate. Because of this knowledge that the problem was common to the industry, 39 firms were enrolled in a voluntary certification program beginning in October 1970. *Every* batch produced *since that time* has been assayed by FDA prior to shipment and to our knowledge all digoxin entering interstate commerce has been in compliance with compendial standards. I might say that the firm having 86 percent of the U.S. market with zero defects has recently had problems of a different sort than content uniformity with their production of digoxin in England. I mention this only to point out that all manufacturers, large and small, can experience difficulties in drug production.

Since 1970, our St. Louis laboratory has completed the study of 19 different classes of drugs including—adrenocorticosteroids, major and minor tranquilizers, urinary antibacterial agents, CNS depressants, antithyroid agents, cardiac glycosides, coronary vasodilators, anticoagulants, oral contraceptives and others. We have now extended the study to 30 drug products representing the top 15 therapeutically significant drug classes. This study will cover every known manufacturer of these products. We believe in this way we will have reliable data upon which we can make meaningful judgments on an across the board basis. Under the new Freedom of Information requirements, we intend to begin publishing this data once it has been verified and we have assured ourselves it will present a true picture on a given class of drugs. On the basis of the data we have accrued to date we cannot conclude there is a significant difference in quality as between the generic and brand name products tested.

Another important surveillance program is our Drug Product Defect Reporting Program. This is a jointly sponsored program by the American Society of Hospital Pharmacists, the USP and FDA. It is a voluntary program in which hospital pharmacists across the nation report drug defects which they encounter in drug products, their packaging and labeling. To date, we have received hundreds of reports which reflect the observations of professionals who are thoroughly familiar with drug products. I have learned of several significant defects through this program and here again we are finding such defects in both brand and generic products. We are now beginning two related programs on a pilot basis. One is an extension of the hospital pharmacy reporting to community pharmacies in four states. The other is with the American Nurses Association Nurses have a unique opportunity

to observe problems associated with the actual administration of the drug products. Reporting programs such as these are vitally important because through them we can pinpoint problem areas rapidly and move effectively to correct them.

The traditional and very important approach to drug surveillance in the United States has been accomplished through routine inspection of drug plants by our field districts. We have 19 district offices and 95 resident posts and approximately 400 drug inspectors scattered across the nation. It is their responsibility to inspect drug firms to determine whether or not they are operating under current good manufacturing procedures and, if not, to report the deficiencies to the plant officials. Whenever necessary, evidence is gathered for legal action in the form of seizure, injunction or prosecution. They also monitor drug recalls to make certain defective products are actually removed from commercial channels.

In fiscal year 1972 we had a total of 638 drug recalls. Of this total 291 were brand name and 347 generic products. Again the defects were encountered in big companies, small companies, brand and generic products. So much for a description of our programs in total drug quality assurance.

Bioavailability

A subject on which there has been a good deal of discussion and some confusion is the subject of bioavailability. Some would suggest that since a small number of drugs have had bioavailability problems we should assume that all may have such problems and therefore should use only those that have been through human trials. This tack, of course, requires ignoring the probability that since after many years of generic drug use we have not recognized many major problems of clinical significance, then the problem may well be much smaller than some would suggest and that though there may be a problem detectable by certain techniques, it may not have clinical significance. Some would have us believe that any formulation which has not been shown effective through a clinical trial is suspect, unless bioavailability data are available. Such individuals fail to recognize that this argument, carried several steps further, would require bioavailability testing of every batch of all drugs, even those which had gone through clinical trials, since each batch produced in the years after the trials could have had subtle formulation changes introduced which could affect its bioavailability also. Since this approach is impractical, prudent men must decide what reasonable course of action the public can afford, which will also protect the public health.

Given what we know and what it is possible to achieve, the agency has proposed to adopt the following course of action.

All new durgs during their development will be required to develop bioavailability data. This will serve two purposes; it will provide a means of periodically assessing the continued bioavailability of the reference drug during its years of marketing after introduction and will also provide a reference point (a standard) which other drugs which propose to enter the market without clinical trials will have to meet.

Some small number of drugs which have not undergone clinical trials and which are critical drugs for significant conditions, or which have certain characteristics which would lead us to believe there may be a bioavailability problem, will have to develop bioavailability data against a reference product. If this is not possible such drugs will have to undergo clinical trials. A large number of other drugs in which all the information we now have would lead us to believe that there is unlikely to be a significant bioavailability problem will have this requirement deferred until some future time.

We believe such a course is justified by the facts available and will, in conjunction with all the other programs I have already described, adequately protect the public health. We will continue to study the bioavailability problem. Whenever significant new information is generated which would warrant a change in our policy we will not hesitate to do so.

Brand and Generic Names

A number of things are now going on in the brand-generic area of which you should be aware. Many of you already know that some of the large name brand manufacturers have been large providers of generic drugs for years. Recent events indicate that more and more generics will be manufactured by traditionally brand name manufacturers. As the number of different drug substances increases, and as the expense involved in maintaining manufacturing facilities for a full line of drugs rises, more and more manufacturers, large and small, generic and brand, are selling to each other either bulk drugs of finished dosage forms. This will make it increasingly difficult for the average purchaser to know who really made the drug despite the name of the manufacturer on the product. In a number of instances one manufacturer is providing a large number of firms the same drug which is then marketed under a wide variety of brand and generic names. My point is that it is becoming difficult in a number of areas for the buyer to ascertain who really made the product he buys.

It is difficult today for the individual health professional to really assess the quality of the drugs offered to him for sale. After all, each individual has a very small experience with a particular drug and not infrequently is unaware of the fact that other users of the same drug have noted problems. As evidence of some uncertainty is the fact that some professionals will prescribe the highest price product when the same product is being offered at a substantial saving by equally large or experienced firms, or is paying a higher price for a brand name drug when the same drug manufacturer offers the same drug at a lower price generically. Some seem to mistakenly equate that big manufacturer or brand names is good while smaller manufacturer or generic name is of necessity bad. This impression is just not borne out by the facts today. Some of this confusion will be dispelled as we begin publishing the results of our national drug quality survey being done by our NCDA and regional labs.

When this is done, my hope is that people will understand that a firm which is found to have produced a bad batch by these surveys should not necessarily be condemned or put out of business, because as I have stressed, large and small have stumbled—and have corrected their defects and gone on to produce quality products. However, if a firm develops a pattern of poor performance or does not correct a defect once found, then drastic corrective action will

obviously be appropriate and we will not hesitate to take such steps.

In summary, what then does this all mean? Where do we stand in total drug quality today? In our judgment the total quality of the nation's drug supply is high and is constantly improving. Marginal drugs and manufacturers are being removed from the market. Those that remain are better tested than they have ever been before and exceed in quality in the world.

Is it good enough? Not yet. Can it ever be perfect? Given the complexities of drug manufacturing, probably not. Do we still find defective drugs? Yes we do, but this should surprise no one, since it is humanly impossible in this less than perfect world to produce tens of billions of doses of a wide variety of drugs each year and not make a mistake. Is a brand name a guarantee that a drug will be good while a generic name an indication that the drug will be bad? In our experience it is not.

I have tried to outline for you the comprehensive government program which now exists to assure the nation's total drug quality. We plan to take more steps to further strengthen this program in the months ahead. We know we will find problems in the future; this is to be expected; when found, we will correct them and thereby raise the standard of quality one more step toward the goal of a consistent and uniform high quality drug supply for the American public.

Dr. A. M. Novitch stated "A great opportunity exists to extend the benefits that prescription drugs can offer, at a cost that all of us, as individuals and as a society, can afford. All of us are responsible for seeing that that opportunity is not lost".

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Frusemide 40 mg.
Griseofulvin 125 mg.
Nitrofurantoin 50 mg.
Paracetamol 500 mg.
Penicillin V 125 mg., 250 mg.
Phenobarbitone 30 mg., 60 mg.
Phthalylsulphathiazole 500 mg.
Prednisolone 5 mg.
Reserpine 0.25 mg.
Sulphamethoxypyridazine 500 mg.
Tolbutamide 500 mg.
Triple Sulphonamide, etc.

CAPSULES

Tetracycline HCl. 250 mg.
Chloramphenicol 250 mg.
Ampicillin Trihydrate 250 mg., etc.

AMPOULES

Atropine Sulphate 0.6 mg/ml
Andrenaline 1 in 1000
Aminophylline 25 mg/ml
Chloroquine Diphosphate 50 mg/ml
Ergometrine Maleate 0.5 mg/ml
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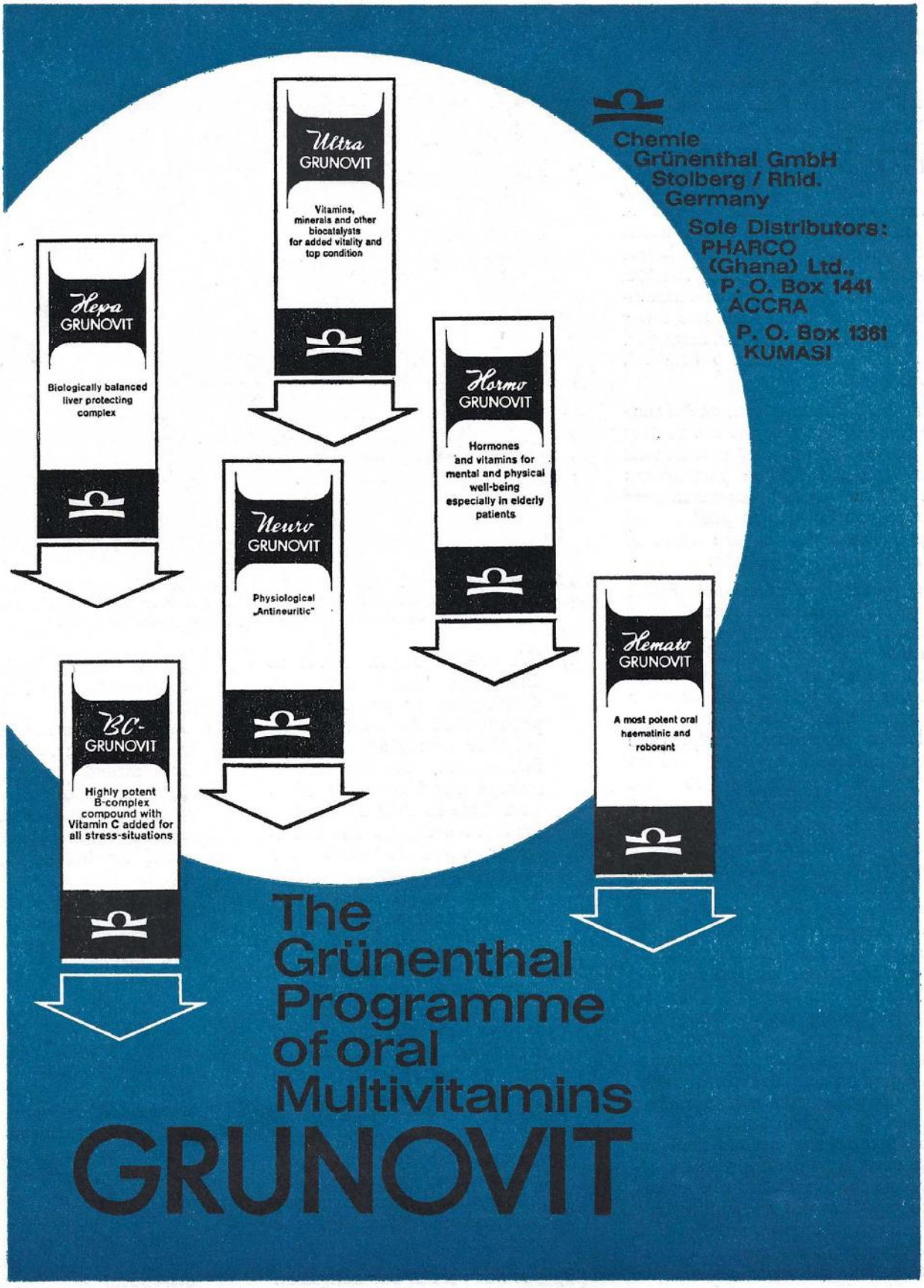
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EASTER REFRESHER COURSE

by Our Correspondent

IT was briefly mentioned in the maiden issue of the Journal how successful this year's Easter Refresher Course for Pharmacists held at Faculty of Pharmacy, University of Science and Technology, Kumasi, was. We publish in full in this issue of the Journal two lectures which were delivered to the Course participants; one by Prof. D. K. Santra, Head of the Department of Pharmacognosy of the Faculty and the other by Mr Seth T. Abadji, Pharmaceutical Sales Manager of Danafco Limited, Accra.

Mr K. A. Ohene-Manu, the Honorary General Secretary of the Society also delivered a talk on "Professional Ethics" to the Course participants in a bid to remind Pharmacists of their responsibilities as professional people. The following are some of the main points of his talk:

"In general, Professional Ethics involves those moral principles and rules of conduct which persons who have been properly trained in a particular vocation or calling are duty-bound to follow. For our particular instance then, we may limit ourselves to those moral principles and rules of conduct which we as individuals belonging to the Profession of Pharmacy have to adhere to before we could be judged by others as professional people. Do not let us forget that it is not enough for us to call ourselves as professional people only because we have followed various courses of study in pharmacy. We rather have to prove to others by our conduct that we indeed belong to a calling and we have certain obligations and services to render to the community that no one else can provide.

Let us pulse and ask ourselves whether in all instances we as Pharmacists in our various branches of the pharmacy profession have always done those acts that will enhance the reputation of the calling and prove to others that we are a professional people? To my mind, most of us if not all do fall short of what is expected of us as professionals. Let us look at a number of examples:

This is a group photograph of the course lecturers and participants taken at the end of the course. Standing fifth from the right in the front row is Prof A. N. Tackie, the then Dean of the Faculty of Pharmacy, who opened the Course

(i) We are all required not to encourage the dispensing, distribution or promotion of products of doubtful quality, whether resulting from formulation, production, or storage but how many of us do adhere to this? Some of us promote products the therapeutic value of which our training should let us question, but we do it because as Medical Representatives we are employed to do so.

(ii) How many Pharmacists in general practice or retail do not dispense or substitute products of doubtful quality? Invariably, this is done because the products of doubtful quality is cheap in price and we can make a higher margin on it than the product that we know to be of good quality. So in these instances, our primary motivation is money and not the ideals of the profession.

(iii) Is it not part of our obligation to contribute to ensure that the objectives of our professional Society which seeks the betterment of the profession of pharmacy are achieved? How many of us do regularly contribute their time to attend meetings and conferences organised by the various branches of the Society or the National Headquarters itself or indeed how many of us even do pay without persistent demands, our membership fees which will enable the Society forge on toward the achievement of these objectives?

(iv) Quite a number of some of us in general practice or retail pharmacy blatantly attempt to practise medicine instead of pharmacy when medical practitioners are only a stone's throw away from their premises. Is this legal or ethical? As professional people, are we not required to do anything that will bring the profession into disrepute? And yet don't we do this despite all comments from the medical profession

and the authorities? I know some of us will say that the doctors themselves have not laid off the practice of pharmacy so they cannot stop us from practising medicine. But are we trained to practise pharmacy or Medicine, or should we necessarily bring the profession into disrepute because some members of the Medical profession are not doing the right thing?

(v) Let us look at the question of advertising of pharmaceutical products. Don't we as pharmacists in industry and commerce know that the laws of the land prohibit the advertising of certain products in the lay press? Let us ask what exactly we set out to achieve when we cause Class A & B drugs to be advertised in the lay press? The objective of every advertising programme is to increase the sale of the product or service which is being advertised. So when we advertise a dangerous drug in the lay press then we are asking the public to go out and obtain the drug and, of course, the public will manage to obtain the product illegally either from the Chemical Seller or the pharmacist. In effect, therefore, by the improper advertising we encourage illegal supply and acquisition of restricted drugs and at the same time promote drug misuse. As professionals, we have a responsibility to protect the public from these evils but unfortunately, we end up encouraging them to indulge in these evils.

As professional people, we should inculcate an intimate feeling of unity within the pharmaceutical family and if we are members of one family the natural thing would be for us to protect each other. But what do we find? No one would say that we should necessarily shield each other when we know that something illegal is being perpetrated by a fellow pharmacist. I am rather referring to the bizzare attitude of our Inspectors who will insist on checking to the minutest detail that a retail or wholesale pharmacist is not infringing any part of the law relating to the keeping of records on disposal of restricted drugs while this same inspector looks on nonchalantly at the pharmacist's next door neighbour — a Chemical Seller who illegally sells all kinds of restricted drugs without any record whatsoever. One may even ask, how come that the pharmacy Board in the first instance granted a Chemical Sellers Licence to an illiterate trader to enable him open up shop next to a pharmacy? By doing this, was the Board interested in protecting the professional business of the pharmacist? So in the final analysis, we rather find ourselves protecting non-pharmacists and allow them to encroach on our preserves. Let us again ask ourselves — how did the Chemical Seller come by his stocks of restricted drugs if the manufacture or importation and distribution of these drugs are done by Pharmacists? It is not the same pharmacist who sells the drugs to the Chemical Seller illegally or gives him a blank signed order to enable him obtain them? Need this happen if we are desirous of protecting the interests of the profession and its members.

(vi) I have attempted to provoke your thoughts on the sort of things that we as Pharmacists have to do to let the public see us as professional people. And we can best do this by cultivating the moral principles, and following the rules of conduct which the Profession of Pharmacy to which we belong imposes on us."

In response to a **toast** to the Pharmaceutical Society of Ghana at the end-of-Course dinner at the Queen Elizabeth II Hall of the University, Mr V. K. Aidoo, the President of the Society said:

"Distinguished Guest, Ladies and Gentlemen: It is with a feeling of great joy and deep sense of personal pride that I arise on this occasion to respond to the toast to the Pharmaceutical Society of Ghana. The Pharmaceutical Society of Ghana is a noble society to which we are proud to belong.

On this occasion all of us present must be proud to have been participants at this refresher course. The course has been useful and I am specially glad the society has been able to organise it in conjuction with the Faculty of Pharmacy which trained most of us present.

I take this opportunity to repeat that the National Council is proud to have been able to organise this course which has not been held for a decade. Those of us who had the opportunity to attend the 1963 course will find that this year's course has benefited us more because we have been able to see and use new instruments and apply new techniques. As a science, pharmacy keeps on changing and new ideas and techniques keep on coming up.

We are very grateful to the Dean of the Faculty and his able staff. To members of the Pharmaceutical Society of Ghana who do not belong to the Faculty, I say many thanks for attending the course. We hope many more of our members will find time to participate in the next course. I would like to see this course as an Easter affair so that more of our members will be able to arrange to attend.

The Professional Bodies Decree NRCD 143 of January 1973 enjoins the society to be a body corporate and:

(a) shall have perpetual succession and a common seal
(b) may sue or be sued in its own name
(c) may acquire, hold and dispose of any movable or immovable property
(d) may enter into contract or other transaction, and in consultation with Government

(i) provide for the education and training for the purpose of enabling persons to qualify to become members

(ii) make rules and regulations governing the admission and the Code of Ethics of its members compatible with its traditions including rules and

(Continued on page 117)

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PEOPLE IN THE NEWS

PROF. TACKIE HEADS THE NATION'S SCIENTIFIC AND INDUSTRIAL RESEARCH

THE Government has appointed Prof. Albert N. Tackie until 30th June, 1973 the Dean of the Faculty of Pharmacy, University of Science and Technology, Kumasi, the Executive Chairman of the Council for Scientific and Industrial Research, the Nation's top most research Organisation, with effect from 1st July, 1973.

Dr Tackie born in Accra on 3rd November, 1924 left Achimota School in 1942 and took his B.Pharm. Degree from London University in 1953 after qualifying at the Korle Bu Hospital Dispensing School in 1947 as a Pharmacist. He became a member of both the Pharmaceutical Society of Ghana and the Pharmaceutical Society of Great Britain in 1947 and 1954 respectively.

Albert Tackie who has been a member of the National Council of the Pharmaceutical Society of Ghana since 1957 returned to Ghana in 1954 from the United Kingdom to join the Ministry of Health as a Principal Pharmacist.

After a three-year spell at the Ministry of Health, the academic-inclined Tackie left the Ministry in 1957 and joined the staff of the new Pharmacy School which had opened in Kumasi. In 1960 he returned to Chelsea on study leave and in 1963 he obtained the Ph.D.(LOND) degree following the successful presentation of a thesis on "Alkaloids of Mitragyna Species of Ghana". He came back to Ghana in 1963 and was appointed Associate Professor of Pharmaceutical Chemistry at the Faculty of Pharmacy, University of Science and Technology, Kumasi, the same year and the following year became Professor and Head of the Department as well as Dean of the Faculty of Pharmacy.

Dean Tackie who is a Fellow of the Ghana Academy of Arts and Sciences was the first Ghanaian Fulbright Professor to teach and carry out research in medicinal chemistry at the School of Pharmacy, Duquesne University, Pittsburgh, U.S.A., and he is a member of the Pharmacognostical Society of the U.S.A.

Professor Tackie has held a number of key positions on various Boards and Committees in industry, Academy of Arts and Sciences, the University of Science and Technology and has been on several University and Government delegations to various Conferences worldwide—Nigeria and China (1964), Switzerland (1965), Australia (1968) and Zaire (1969).

Prof. Tackie has to his credit some twenty prinicipal publications either alone or jointly with eminent Scientists like Prof. Arnold Beckett and Prof. E. J. Shellard both of Chelsea; and J. E. Knapp and P. L. Schiff, Jnr. both of the University of Pittsburgh, U.S.A.

With his new appointment as the Executive Chairman of the Council for Scientific and Industrial Research Prof. Tackie now heads all state-sponsored research activities whether in industry, the Universities or Research Institutes of the Ghana Academy of Arts and Sciences.

We wish Professor Tackie well in his new appointment and hope he will still find time to continue his active participation in the Society's affairs.

OSEI-TUTU Goes to the Supplies Division.

Mr E. Osei-Tutu until recently the Principal Pharmacist in charge of the Pharmacy Department of the Korle Bu Teaching Hospital, Accra has been called to the Headquarters of the Ministry of Health to take charge of the Ministry's Supplies Division which is now part of the Chief Pharmacist's department.

Mr Osei-Tutu is the Hon. Treasurer of the Society and has been a member of its National Council since 1967.

S. R. BOAKYE: Principal Pharmacist, Cape Coast Central Hospital has been transferred to Korle Bu Teaching Hospital as the Principal Pharmacist in charge of the Hospital's Pharmacy Department following Mr Osei-Tutu's transfer to the Ministry of Health. Between Mr Osei-Tutu's departure and Mr Boakye's arrival at Korle Bu, Mrs Eniton Gavu, a Senior Pharmacist at the Hospital acted as Head of the Pharmacy Department for about one month.

Mrs Gavu is a member of the Editorial Committee of the Journal.

N.R.C. COMMITTEE ON DRUGS:

In May 1973 the Government appointed a three-man Committee on Drugs under the Chairmanship of Prof. A. N. Tackie, the then Dean of the Faculty of Pharmacy, University of Science and Technology, Kumasi. The terms of reference of the Committee are:

1) to consider the drug requirements of the country;
2) investigate the causes of the present drug shortage;
3) recommend ways and means of checking the shortage and ensurnig the smooth supply of drugs to all hospitals.

The two other members of the Committee are Lt. Col. (Dr.) R. O. Addae of the Military Hospital, Accra, and Mr J. Y. Binka, Assistant Hon. General Secretary of the Society who was nominated by the Society to serve on the Committee at the invitation of the Government.

The Committee which is still working has already toured several Hospitals and Government Medical Stores throughout the country.

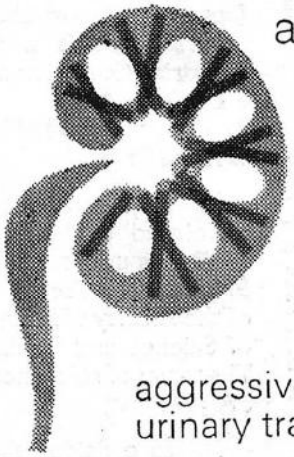
THE PRESIDENT TOURS BRANCHES:

Mr V. K. Aidoo, the President of the Society resumed his visits to Regional Branches in February with a visit to the Central and Western Regional Branches at Cape Coast and Sekondi/Takoradi respectively.

He visited the Ashanti Regional Branch in Kumasi on 22nd April and went to Sekondi/Takoradi again on 19th May.

The President had very useful discussions with the officers of all the branches visited and his visits served to reactivate some branches.

He had previously visited Koforidua, Tamale and Bolgatanga late 1971.



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Indications: Urinary tract infections caused by gram-negative and some gram-positive organisms.

Side Effects: Mainly mild, transient gastrointestinal disturbances; in occasional instances, drowsiness, fatigue, pruritus, rash, urticaria, mild eosinophilia, reversible subjective visual disturbances.

Dosage: Adults, 4 Gm. daily by mouth (2 tablets of 500 mg. four times daily) for one to two weeks. Thereafter, if prolonged treatment is indicated, the dosage may be reduced to 2 Gm. daily. Children may be given approximately 25 mg. per pound of body weight per day, administered in divided doses. Until further experience is gained, infants under 1 month should not be treated with the drug.

Wintomylon should be administered on an empty stomach—preferably 1 hour before a meal.

How Supplied: Buff-colored scored tablets of nalidixic acid, 500 mg., for adults, in bottles of 56 (sufficient for one full week of therapy).

References: 1. Bush, I. M.; Orkin, L. A., and Winter, J. W., in Sylvester, J. C.: *Antimicrobial Agents and Chemotherapy*—1964, Ann Arbor, American Society for Microbiology, 1965, p. 722. 2. Robertson, M. H.: Antibiotic resistance patterns of organisms causing acute urinary tract infections occurring in general practice, *Brit. J. Clin. Pract.* 22:63-67, Feb., 1968.

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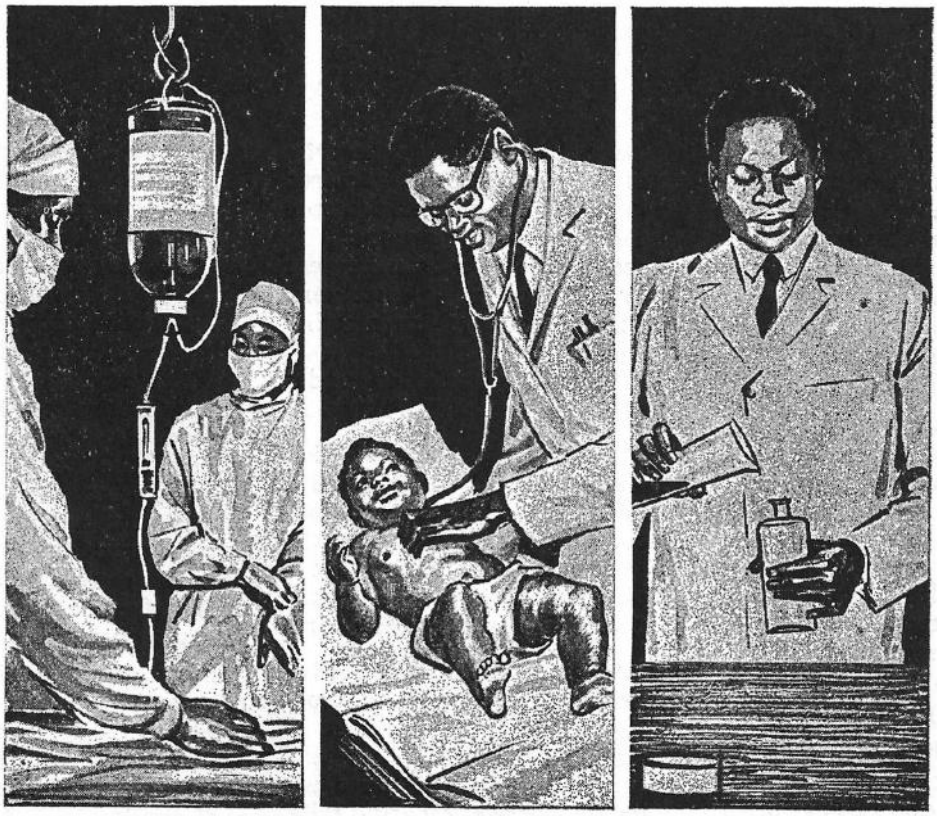

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PROMOTION AND MARKETING OF PHARMACEUTICAL PRODUCTS

by Seth T. Abadji, B. Pharm., MPSG
Pharmaceutical Sales Manager
DANAFCO LIMITED, ACCRA.

It is true that the ILO (International Labour Organisation) is responsible for a worldwide programme of technical co-operation in the field of management development which is currently operating in over 40 developing countries, many of them in the early stages of industrialisation.

As the ILO management development programmes have spread across the world, it has become increasingly evident that, unless markets for the products and services of industry exist, or can be created, it is of little value to teach the other techniques of management. This therefore more than underscores the importance of MARKETING in any organisation.

To dilate — the teaching of production management techniques and their application to the raising of productivity is a comparatively simple matter; but if the outlets of the resulting increase in production cannot be developed at the same time, rising productivity is likely to result in cutbacks in the labour force, which is the very opposite of what the ILO's Programmes for the CREATION OF EMPLOYMENT are designed to achieve. It would not be too much to say therefore that the creation of markets — and thus of increased opportunities for employment — is one of the burning problems of the developing world.

What therefore is MARKETING? MARKETING at large is the performance by a business enterprise of all the activities required in order to create, promote and distribute products in accordance with the present or potential customers' demand and the firm's ability to produce.

This definition is explained under the headings of Marketing Activities:

a) **Market Research** — Activities concerned with obtaining information. It is necessary to find out facts about the market so that decisions can be based on factual information and not on guess-work.

b) **Product Planning** — Activities concerned with developing a product so that it satisfies the customers and enables the enterprise to use its productive capacity fully.

c) **Pricing** — Activities concerned with determining the price of the product on the basis of costs as well as market factors such as distribution channels used, discount structure applicable, level of prices of competitors' products, ability or willingness of customers to pay, etc.

d) **Advertising** — Activities concerned with making the product known to the customers and creating demand for it. Advertising brings the customer to the product.

e) **Sales Promotion** — Activities covering all aids to sales other than advertising. Sales Promotion stimulates demand and increases sales. Usually sales promotion moves the product towards the customer.

f) **Distribution** — Activities concerned with getting the product from the manufacture to the customer, making the product available and easy to buy.

The activities outlined above are carried out when PLANNING and PREPARING a Marketing Programme. Let us first of all look closely at the definition of pharmaceutical products. These are chemical substances which are administered to modify or regulate the effects of diseases or influences on the body.

These products differ from other consumer goods and industrial products. It is therefore necessary to develop quite a different marketing strategy towards effective selling and distribution of pharmaceutical products.

Marketing of Pharmaceuticals is basically the transfer of these products from the factory to the ultimate consumer. This process is however not simple. It deals with certain elements which we have to consider in detail:

Brand Names, Trade Marks, Labels & Labelling:

For a Pharmaceutical to sell well it needs to be associated with a reputable producer or bear names, symbols or marks which are well known to the consuming public. A trade mark or brand name can sell the product much faster than the best salesman. Brand names are used for convenience to shorten long generic names e.g. X'—methyl dopa (ALDOMET), Acetylsalicylic

This was first presented at the 1973 Easter Refresher Course for Pharmacists organised jointly by the Pharmaceutical Society of Ghana and the Faculty of Pharmacy, University of Science & Technology, Kumasi at the University.

Acid (ASPIRIN) etc. Brand names also are registered names of drug firms to denote quality and guarantee e.g. Xylocaine by Astra for Lignocaine, Butazolidin by Geigy for Phenylbutazone etc.

Since over or under administration of drugs will not produce the desirable results, they are sold with clear legible and unambiguous labels. All instructions must be clear so that there is no doubt in the mind of the purchaser.

Packaging:

Associated with the trade names or marks and labels is the packaging of the product itself. In this present world of the "self service" revolution, packaging sells a product. It necessarily should be the "silent salesman" attracting the customers to the shelf where it is displayed.

Packaging should also protect the product and preserve it as well; since most pharmaceuticals require to be stored under special conditions.

That is not all. The size of the pack for pharmaceuticals must also reflect the purchasing habit and the life style of the consuming public. For example if majority of people buy analgesics in small packs of 10, 25 or 50, this should be done while the 1000 pack is reserved solely for those who buy to resell or hospitals so as to cut down costs. The 1000 pack is also necessary since other groups of consumers often buy non-ethical products in bits of one or two tablets for on the spot use. Whatever the case the right type of pack must be developed for the right class of consumer.

Merchandising

Associated again with packaging is the process of displaying these products on the shelves; in glass boards etc. Most non-ethical products like the analgesics already mentioned, contraceptives, etc., etc., are bought on impulse in anticipation for future use. No one buys plaster or bandage only when he is in trouble. These are first aid materials and must have some amount of emotional sensation built into its presentation.

The ethical group of Pharmaceuticals which are only sold on prescription and therefore kept out of reach of the consumer also need be merchandised to its appropriate trade. For example, a sample of pharmaceutical product presented to a Medical Officer or a Pharmacist for sales Promotion purposes need be well presented in order to attract the buying authority.

What we must not forget now is that however well our products have been packed, advertised and whatever be its quality, one very important deciding factor is *PRICE*. Pricing therefore must be taken seriously in the sales of Pharmaceuticals.

Generally most products of the non-ethical group adopt what is known as the "Penetrating Pricing Policy" by which we mean the manufacturers want to use the strategy of low/high volume sales. In case of the ethical products or speciality items "*Scheming Pricing Policy*" is usually adopted. *This means that the manufacturer wants to sell at high prices — only a few units of his output.* Examples:

Penetrating prices are advisable in case of keen competition or where the product is only "competition fighter." However if your prices are too low, your competitors can easily displace you while your customers are also likely to ascribe "Low image" of quality of your offerings. Scheming Prices also do not allow a manufacturer of Pharmaceuticals a turn-over on his capital fast enough to warrant his investment. However; whichever policy is adopted must depend upon the nature of the area, level of competition, production costs and general government policy.

Pharmaceuticals unlike food items are only bought when the need arises. This purchasing habit dictates that a good DISTRIBUTION POLICY must be pursued, in the marketing of Pharmaceuticals.

The ethical products must be sold through specialised shops or only with the authority of specialised agencies. However they cannot be available at all locations. EXCLUSIVE distribution is the only policy which can sell the non-ethical goods which need wide distribution — through retail shops; drug houses; hospitals and even through hawkers and paddlers. These type of pharmaceuticals are bought at convenient locations in bits and when required and therefore must be widely distributed and packs must reflect unit price.

Note however that some classes of pharmaceuticals cannot be sold through drug houses only e.g. plasters, bandages etc., these must be distributed through Supermarkets and Department Stores.

Since these products have strict instructions, their distribution channel should not be too long, that is to say one product should not pass through several hands before reaching the final consumer since age can deteriorate the effect of some of these products.

Selling: Selling is one of the elements of the marketing function and must be carefully dealt with.

For Pharmaceuticals of all types; 2 types of Sales forces will be needed.

a. Those who sell in the shops or in dispensaries. These people must be conversant with the product, its manufacturers, its life and all the benefits and characteristics that can push the product on to the customer. A salesman of this nature must be smart, alert and prospective, always ready to suggest close substitutes in events of non-availability of a special kind of drug.

b. The field sales force or those who move from institution to institution, region to region also need to be familiar with all the benefits and characteristics of the product they sell. They must be able to carry enough stock so that they can supply all orders received. Problems faced in presentation — customer complaints on goods sold must be well recorded and reported to base.

The field sales force must carry with them samples which they can leave free with the purchaser, sometimes, sales vans with loud-speakers must be used to herald the introduction of a new product. Demonstrations will be necessary on market days in the rural areas. Competitions can be organised to promote the sales of non-ethical goods and

Vibramycin*

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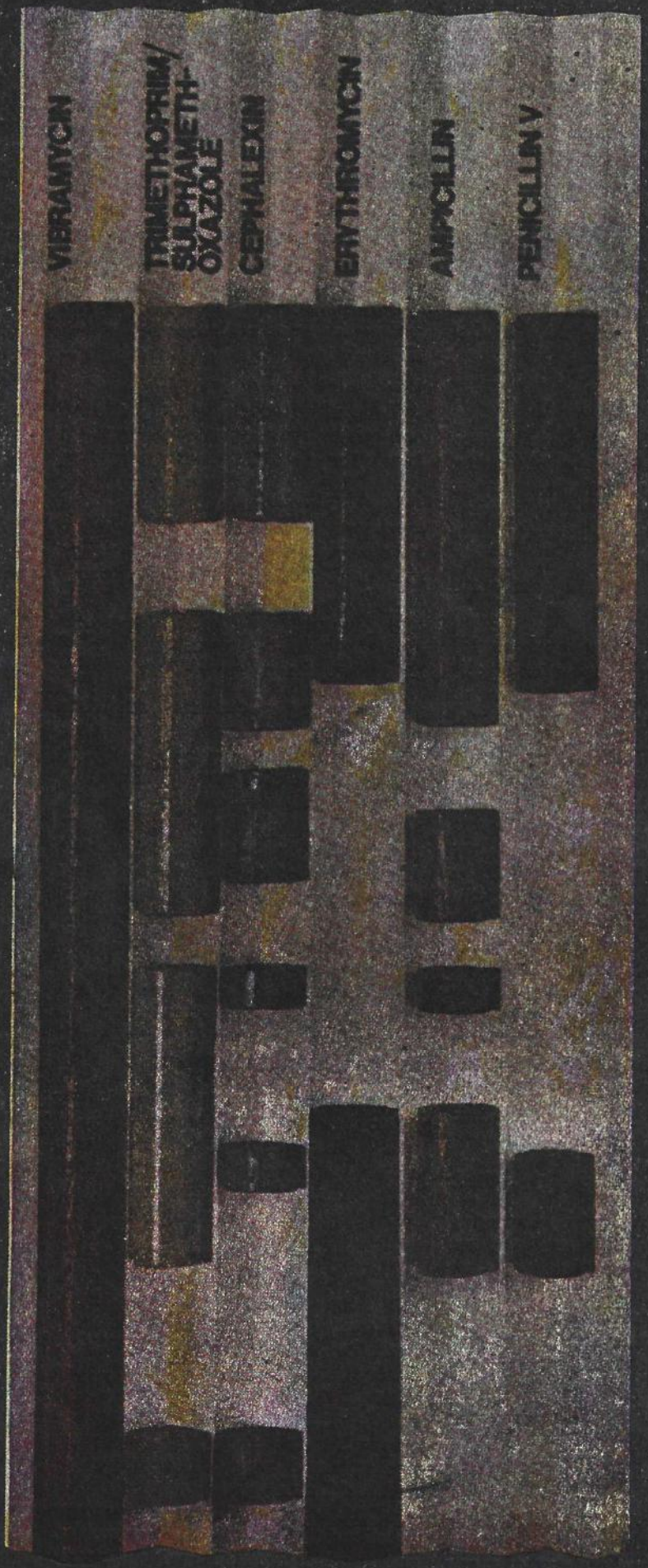

- Staph. pyogenes
- Strep. pyogenes
- Strep. faecalis
- Strep. pneumoniae
- Clostridia spp
- Bacillus anthracis
- Listeria monocytogenes
- Neisseria gonorrhoeae
- Neisseria meningitidis
- Esch. coli
- Aerobacter aerogenes
- Kleb. pneumoniae
- Salmonella spp
- Shigella spp
- Brucella spp
- Pseudomonas aeruginosa
- Proteus mirabilis
- Proteus vulgaris
- Proteus morgani
- Pasteurella spp
- Haemophilus influenzae
- Bordetella pertussis
- Bacteroides spp
- Rickettsiae spp
- Psittacosis ornithosis
- Mycoplasma pneumoniae
- Entamoeba histolytica
- Penicillinase producing organisms
- L-forms

once-a-day dosage

Full information is available on request

Pfizer PFIZER LIMITED. ACCRA.

*Trademark

also at times conditional sales can be used to move goods which are not fast moving e.g. a package containing both Senior & Junior Aspirin can be sold at a premium or bonus deals. But whatever method the SALES PROMOTION takes it must not infringe the law and regulations binding the Sales of Pharmaceuticals.

Since consumer buying habits are changing fast, it is necessary to adopt fast new *Product Development* Policy. A new product is not necessarily the one which is not yet known; it can be a modification of an existing line, as for example sugar coating, scoring, reducing or increasing present size or changing the shape to be convenient for administration. A forward looking pharmaceutical organisation must always be thinking ahead of time by conducting Market Research at regular intervals, soliciting consumers comments and also keeping a close eye on the activities of competitors.

CONCLUSION:

1. Pharmaceuticals are ethical products which will be taken in the final analysis by human beings or animals to alleviate or reduce illness. Purity and quality must guide all manufacturers who put products on the market

2. The use of brand names by companies, denotes quality which reassures the Medical Officer or patient that he or she will get the same response today to the drug as he did yesterday. What will happen if a hypertensive patient is put on a different brand of an antihypertensive drug whose bio-availability is different?

3. Because of competition, promotional activities must be such that they fall at the time of slacken buying periods. All media (acceptable in the country of promotion) must be used e.g. Radio, Television, Newspapers, Professional Journals, Exhibitions and Trials. Competitive activity must always be watched and their story to consumer noted with a view of adopting a strategy to overcome effects on your own promotion.

4. Give a reasonable price and prove to the customer why you think that your price is the best for the quality of product you are selling and the benefits he will derive, if a customer complains of price, he is not convinced of the benefits.

5. Develop empathy or rappours with your clients so that they trust you and believe that you are doing everything to make them succeed in their business. Give them information first hand and tell them of bonus deals.

6. It is apparent that the market of a particular product will grow if the above points are followed with variations where necessary.

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Combantrin*

PYRANTEL PAMOATE

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Pfizer

Unparalleled cure rates in Roundworm, Pinworm (Threadworm), Hookworm, alone or together.

	Overall Results	No. of Patients	% of Patients Cured
● Roundworm	Combantrin	650	96%
● Pinworm (Threadworm)	Combantrin	319	96%
● Hookworm	Combantrin	302	85%
		139	96–98%†

† At manufacturers' recommended doses.

	Comparative trials†	No. of Patients	% of Patients Cured
● Roundworm	**Combantrin**	**102**	**93%**
	Piperazine	92	64%
● Pinworm (Threadworm)	**Combantrin**	**120**	**94%**
	Pyrvinium	124	77%
● Hookworm	**Combantrin**	**110**	**92%**
	Bephenium	108	77%

† At manufacturers' recommended doses

Excellent toleration demonstrated in nearly 1,000 patients.

No. of Patients in the Study	No. of Patients with side effects	% of Patients with side effects
974	7	0.72

True economical single-dose efficacy. No staining. Maximum convenience for the patient and the physician.

Prescribing Information:

DESCRIPTION: Combantrin (pyrantel pamoate) is a new single-dose anthelmintic agent, highly effective against infestations with pinworm (Enterobius vermicularis), roundworm (Ascaris lumbricoides), and hookworm (Ancylostoma duodenale and Necator americanus) in children and adults.

MODE OF ACTION: Combantrin (pyrantel pamoate) exercises a neuromuscular blocking effect. By virtue of its action Combantrin (pyrantel pamoate) immobilizes ascaris and causes their safe excretion without ascaris excitation or migration. Combantrin (pyrantel pamoate) is effective against the mature and immature forms of susceptible helminths.

DOSAGE (Pediatric and Adult): The recommended single oral dose of Combantrin (pyrantel pamoate) suspension or tablets for the treatment of infestations with Enterobius vermicularis, Ascaris lumbricoides, Ancylostoma duodenale and light to moderate infestations of Necator americanus is 10 mg. (of the base) per kilogram of patient body weight. This is equivalent to 1 teaspoonful or 2 tablets of Combantrin per 25 kilograms of body weight.

For heavy infestations of Necator americanus (daily egg excretion greater than 5,000 eggs per gram feces) it may be necessary to use twice the dose recommended above for one to three consecutive days.

Combantrin (pyrantel pamoate) may be administered without regard to ingestion of food or time of day, and purging is not necessary prior to, or during, treatment.

The high degree of palatability of Combantrin (pyrantel pamoate) ensures ease of administration to all age groups.

WARNING: Although Combantrin (pyrantel pamoate) is poorly absorbed from the gut and animal reproductive studies have not demonstrated any teratogenic effects, Combantrin (pyrantel pamoate) has not been studied in the pregnant patient. Accordingly, it should not be used in pregnant women unless in the judgement of the physician it is essential for the welfare of the patient.

ADVERSE REACTIONS: Clinical experience has shown Combantrin (pyrantel pamoate) to be extremely well tolerated. Side effects, principally vomiting and diarrhea, are very infrequent.

HOW SUPPLIED: Combantrin is supplied as:

Oral suspension (pyrantel pamoate equivalent to 250 mg. pyrantel base per 5 ml.), yellow, caramel-flavored.

Tablets (pyrantel pamoate equivalent to 125 mg. pyrantel base), orange-colored, scored.

* Trademark

Full information and literature is available on request.

BUSINESS MANAGEMENT WITH PARTICULAR REFERENCE TO PHARMACY

BY

A Consultant of the Management Development and Productivity Institute, Accra

1. What is business management
2. What are the functions of management
3. Factors which affect the functions of a manager.
4. Areas of business management
   (a) Purchasing
   (b) Stock Control
   (c) Marketing and Sales
   (d) Planning and Control
5. Resume

This is the text of a lecture given on 14th March, 1973 to members of the Pharmaceutical Society of Ghana — Accra Branch. Some parts of the text have had to be modified to make it suitable for publication. The ideas and principles remain unchanged.

The majority of pharmacy businesses in Ghana operate in the wholesaling and retailing fields. For this reason, the article limits itself to four functional areas of management which are of particular interest to pharmacies.

1. BUSINESS MANAGEMENT

Business management is the science and art of applying resources of manpower, machines and money to achieve given business objectives. A business objective may be one of increasing one's sales volume; or that of reducing overhead expenses. The scientific approach consists in precisely identifying and describing a problem or goal and:

(a) collecting, classifying and analysing relevant information.

(b) using the results of such analyses to determine a programme of action, a system or a technique.

(c) applying the system or technique to the situation.

(d) following up to determine effectiveness or otherwise of the system or technique.

(e) reviewing and improving or modifying the system as circumstances demand.

In applying the scientific approach, managers draw upon findings of scientific disciplines such as economics, statistics, industrial psychology.

The art of management consists in determining the extent to which the scientific approach shall be applied and how. It can be compared to the art of pharmacy which is science based.

2. FUNCTIONS OF MANAGEMENT

Although there are several functions of management, they can all be grouped under two broad headings, namely Administrative and Executive functions.

(a) **Administration:** Administration has responsibility for:—

- Determination of major objectives of the business.
- Determination of over-all policy to be adopted towards the achievement of objectives.
- Co-ordination and direction of executive functions towards the achievement of objectives.

(b) **Execution:** The interpretation and implementation of over-all policy determined by the Administrative function.

Although these two main functions can be separated in principle, in practice the business manager often assumes both roles. The executive director is a typical example. So is the owner/manager who takes day-to-day action to achieve objectives or policies which he himself has decided upon.

3. FACTORS WHICH AFFECT THE FUNCTIONS OF MANAGEMENT

The business manager is primarily concerned with factors which are internal to the business; e.g. the level of stocks, shop or warehouse layout, personnel problems. Yet modern business management cannot function without taking external factors fully into account. Trade Union activities; population changes, governmental regulations and economic conditions are some of the factors which affect some aspects of businesses and management takes or should take, them all into account in formulating policy or taking executive action.

4. MAIN AREAS OF PHARMACY MANAGEMENT

(a) **Purchasing:** Purchasing is a critical management function. Quantities purchased, prices paid, quality of product purchased, time of purchase and delivery schedules are all vital matters that need to be dealt with under this functional heading.

(i) The scope of purchasing:

- To determine buying policy
- To seek new and improved products
- To study economic conditions with regard to supply position, price trends, governmental actions etc.
- Maintain data on sources of supply, prices and quantities of main items of trade.
- Choose suppliers, analyse and compare quotations, place orders and follow-up to ensure timely delivery.

(ii) Policy alternatives:

- Purchasing by requirement; items which either do not sell fast or are not used frequently or regularly, may have to be procured as and when needed.
- Market Purchasing: this policy seeks to take advantage of wide price fluctuations; by buying more than normal requirements when

prices are low. It is essential to consider costs of storage; the risk of deterioration; and the effect on the working capital of the business.

- Hand-to-mouth purchasing: Frequent purchases in small quantities especially when prices are unsteady and the company's requirements are not certain. This policy should consider the possibility of losing quantity discounts, losing sales due to inability to supply customers; and also the high costs in handling and transportation.

(iii) Selection of Supplier:

Although it is usual to select the supplier who quotes the lowest prices and offers the best services it may be prudent on occasion, to split orders, i.e. buy from a number of sources, to ensure supplies of important items. The following policies may also be followed in selecting suppliers:

- Favouring local suppliers — for quick delivery.
- Considering reputation of supplier — for quality and service.

(iv) Forms of Purchasing:

- Group purchasing — placing one order for a large number of small items.
- Scheduled purchasing — giving the supplier an estimate of requirements several months in advance.
- Contract purchasing — contracting for periodic delivery of requirements.
- Co-operative purchasing — this is where a number of small businesses pool their requirements together to make one large purchase.

Purchasing procedures should be simple and definite, yet flexible enough to deal with varying volumes of business. For this reason an effective stock control system should be set up to provide data to aid the purchasing function.

(b) **Stock Control:** In order to avoid shortages, avoid unintentional excesses of stocks, and reduce the risk of pilfering, a stock control system should be set up. The means of establishing an efficient stock control system are:—

- To determine the place of stock control within the organization.
- To identify and classify items of stock.
- To set up stock cards.
- To establish maximum and minimum quantities for all major items of stock and also determine re-order levels.
- To establish physical control of stock by effective store keeping.

(c) **Marketing:** This is the process whereby goods flow from the seller to the ultimate consumer.

Means of developing or improving marketing and sales:

- Continuous market research.
- Selection of appropriate distribution channels, e.g. retail shops; canvassers, van salesmen.
- Determine prices and discounts.
- Advertise and promote the products, e.g. newspapers, hand bills.
- Set up the selling function— territories, types of products, and class of customer.
- Set up service function — advise handle complaints of customers, replacements.

(d) **Planning:**

(i) Overall planning and control is achieved by:

- Deciding policy covering all major phases of the business.
- Reviewing policy periodically.
- Reviewing regularly and analysing financial statements and operating reports.
- Maintaining sound, up to date organization with executives capable of dynamically carrying out departmental functions.
- Carrying out research and forecasting market demand, business conditions and other trends that can affect the business.
- Laying out long range programme aimed at achieving the policy objectives.
- Using budgeting to plan and guide the business towards its goals.

(ii) Prerequisites for budgeting:

- A sound organizational structure.
- Clearly defined aims.
- System for forecasting sales; costs and other relevant information.
- Cost records suitable for comparing current performance with budgeted performance.

(iii) Benefits of budgeting:

- Forces management to systematically analyse all factors affecting the business.
- Translates policies and decisions into programmes of action.
- Unifies all departmental plans.

Limitations:

- A budget cannot replace executive review of functions and performance. Its success hinges on the ability of the manager to relate current performance to the budgetted standard and taking corrective action.

5. RESUME:

As mentioned earlier, the majority of our pharmacies operate in the wholesaling and retailing fields. Except for a very small number, these are sole ownership where the pharmacist is the owner/manager. His responsibilities in terms of management are the same as those of the Managing Director of the large pharmaceutical company operating on a large scale.

Managing a pharmacy entails administrative and executive functions. It requires close attention to the functions of purchasing, stock control, and marketing, and of course planning. This article has dealt with these functions not because they are the only management functions pertinent to pharmacy businesses but because they are the most vital. It is hoped that by drawing attention to these areas and making the owner/manager aware of them, attempts will be made to apply some of the principles to the business of pharmacy.

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EASTER REFRESHER COURSE

(Continued from Page 101)

regulations providing for the ceasing of a person to be a member of the profession.

I therefore hope and pray that each and every member of our society will contribute technically, financially and morally towards achieving our goals.

May 1973 be a year of peace and progress for our noble and ancient profession.

On behalf of the Pharmaceutical Society of Ghana and on my own behalf, I thank all the organizers and participants. Long live the Pharmaceutical Society of Ghana."

From comments made by both members who attended the course and those who read press reports about the Course, it is evident that the Course went on very well and more members will endeavour to attend future Courses.

PROGRAMME—SOCIAL ACTIVITIES

THURSDAY- AUGUST 2.

5.30 p.m.	—	**Official Opening:**	—	His Excellency Col. I. K. Acheampong, Head of State and Chairman of the National Redemption Council.
		Chairman:	—	V. K. Aidoo, Esq., President, Pharmaceutical Society of Ghana.
		Place:	—	Conference Hall, State House, Accra.
		Opening of Pharmaceutical Exhibition:		Hon. Major Anthony Selormey, Commissioner for Health.
		Place:	—	Basement of the Conference Hall, State House, Accra.
7.00 p.m.	—	COCKTAILS		
		Host:	—	National Council, Pharmaceutical Society of Ghana.
		Place:	—	Fore-court of the State House.

FRIDAY- AUGUST 3.

1.00 p.m.	—	LUNCH		
		Host:	—	St. Andrew's Pharmacy Limited.
		Place:	—	YMCA, Accra.
6.30 p.m.	—	COCKTAILS		
		Host:	—	Major & Company (Ghana) Ltd.
		Place:	—	Riviera Beach Club, Accra.

SATURDAY, AUGUST 4.

12.30 p.m.	—	Group Photograph of Conference Participants.		
1.00 p.m.	—	LUNCH		
		Host:	—	POLAFCO (Ghana) Limited.
		Place:	—	Banquetting Hall, State House.
8.00 p.m.	—	PHARMACEUTICAL DINNER AND DANCE		
		Place:	—	BANQUETTING HALL, State House.
		Music:	—	The Full Band of the Ghana Police.
		M.C. for the Dance:	—	Mr Abraham Gyesie

SUNDAY, AUGUST 5.

12.30 p.m.	—	LUNCH		
		Host:	—	CIBA-GEIGY LTD.
		Place:	—	Cafeteria Job 600, State House.
5.30 p.m.	—	Farewell Party		
		Host:	—	Greater Accra Regional Branch of the Pharmaceutical Society of Ghana.
		Place:	—	Cafeteria, Conference Hall, State House.

ACKNOWLEDGEMENTS

The President and National Council of the Pharmaceutical Society of Ghana sincerely thank the Director and Staff of the State Protocol Office for kindly making available the facilities at the State House for the 32nd Ghana Pharmaceutical Conference and Exhibition.

The success of the organisation of the Conference and Exhibition has also been greatly facilitated by the kind assistance received from various Pharmaceutical Companies who by their usual kind co-operation and support contributed not only by participating in the Exhibition or taking advertising space in the Conference issue of the Ghana Pharmaceutical Journal but also made donations either in kind or in cash towards the cost of the Conference.

We wish to mention in particular the following companies who made financial contributions:

African Chemists (Ghana) Limited
Allied Medical Products Ltd
Central Pharmacy
Danafco Limited
Enock Pharmacy
Ghana Drug House Ltd
GIHOC Pharmaceutical Division
Glaxo-Allenburys (Ghana) Limited
Hoechst (Ghana) Limited
Imperial Chemical Industries (Ghana) Ltd.
International Generics Limited
Kingsway Chemists Division of UAC of Ghana Ltd.
Lorne Pharmacies (Ghana) Limited
J. L. Morison, Son & Jones (Ghana) Limited
Pfizer Limited
Pharco (Ghana) Limited
Pharco (Laboratories) Limited
Republic Pharmacy
A. J. Seward (Ghana) Limited
Vetrico Ltd.

To all other individuals and organisations who helped in making this Conference a reality, we say thank you very much.

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