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We extend to you an earnest appeal to join our ranks and assure you we will accord you a warm welcome when we can grasp your hands as fellow members.

"Never put off until tomorrow what should be done to-day"; hence decide to accept the invitation and join us in our efforts to uplift American Pharmacy.

ORGANO-THERAPY FOR PHARMACISTS.*

BY JOHN ZIEG, M. D.

I will discuss only those biological products which are derived from the adrenal, thyroid, thymus, pituitary and ovarian glands, as these are the most important and most used, and their therapeutic value is quite well established. Frankly, reliable information, of practical value to the dispensing pharmacist, is obtainable only from those who prepare these products. To those who become interested, I would suggest that they obtain the printed literature and read the details.

Let me impress upon you,—

(1) That these remedies as a class have already won a place among reliable therapeutic agents.

(2) Their physiological action is to a great extent known even now, i. e., that action which can be recognized clinically, after the administration of sufficient dose, for a long enough period—this in distinction to their action in the normal body, where the activity of these glands is strongly interrelated, to preserve an equilibrium of paramount importance in the preservation of health.

(3) Very remarkable results have been consistently obtained in the regular clinical use of these agents and that, too, in conditions resistant to other treatment. For example, of adrenalin—its powerful local astringent and hemostatic action—its rapid powerful internal action as a cardiac stimulant, and its equally decisive and reliable action of relieving the paroxysms of asthma.

Then again, of pituitrin, its remarkable action on non-stripped muscular tissue, which makes it a marvelous aid in overcoming uterine inertia in labor, a heart-tonic of merit and a remedy of worth in many conditions of muscular atonicity. Then, in the use of thyroid extract or thyroprotein, we find wonderful results, in conditions due to deficient function of the thyroid gland. I might mention more, but these should suffice to arouse the interest of the pharmacist and stimulate in him a desire to learn more of the details of their manufacture and use.

Lastly, these remedies should be used only under the direction of a qualified physician.

Preparation.—In manipulating material so unstable as glandular tissue from the animal body, with a view to preserve it and the active substance it contains, great care and skill must be exercised. A thorough knowledge of the structure both gross and microscopical, together with all the information available on the phy-

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siology of the gland, must be taken into consideration. In the case of the above mentioned glands, the original preparation consisted of the dried substance of the fresh gland, which was previously freed of all extraneous tissue—then ground and put into capsules. At this time considerable advance has been made over the process of simple desiccation of the recent gland.

Care in obtaining fresh material:—This includes the inspection of the animal for diseased condition—no material being taken from animals not otherwise fitted for consumption for food—further the glandular tissue, itself, is inspected for abnormal conditions, since it is quite possible to obtain glands that are far from normal from an animal presenting no condition requiring its condemnation for general food purposes.

Care of fresh material before preparation:—It is needless to say no time is lost in getting the preparation under way, but in the short interval which elapses, from the time the gland is removed from the animal, until the process of preparing it is begun, adequate refrigeration and protection from contamination and infection is provided.

Manipulation of the fresh material:—This includes the thorough removal of extraneous tissue, like fat and connective tissue and the separation of such portions of the gland-tissue proper, which is known to have no value in the preparation of the particular product in hand, i. e., in the case of pituitrin, only the posterior lobe is used, and it must be very carefully separated from the anterior lobe.

Scarcity of fresh material:—From the foregoing it is evident that unlimited supplies are not available, indeed the supply rarely equals the demand, as in the case of pituitrin and corpora lutea,—in the preparation of which only a small part of the whole gland is used,—the problem of obtaining sufficient supplies becomes, at times difficult.

A careful consideration of the foregoing points will give some idea of the care, skill and equipment entering into the production of these therapeutic agents, and the cost attending the same.

LISTED PREPARATIONS.

Thyroid gland:—Desiccated gland—U. S. P., physiologically tested, assayed to contain not less than 0.2 percent iodine, in capsules or tablets, for internal administration.

Thyroprotein (Beebe)—concentrated extract, containing active principle, physiologically tested, assayed to contain not less than 0.33 percent iodine, in tablets containing 1/50, 1/25, 1/10 gr., for internal administration, in glaseptic ampoules containing 1/50 grain, for hypodermic use.

Adrenal gland:—Desiccated gland—U. S. P., physiologically tested, in capsules or tablets. Adrenalin, the active principle—in powder form or in hypodermic tablets, in solution, in vials or 1 cc. ampoules.

Thymus gland:—Desiccated gland—in capsule or tablets for internal administration.

Pituitary gland:—Pituitrin—active principle, in solution, standardized physiologically on the basis of its blood pressure-raising property, in 1 cc. ampoules for hypodermic use.

Ovarian gland:—Corpora Lutea, desiccated—the dried substance of the yellow glandular material, only—the remainder of the gland being discarded.

Because adrenalin is the oldest, has well established worth, and is much used and frequently dispensed, I shall present some of the most important points in relation to it. There is a good deal of sophistry about deterioration of products like adrenalin. It should be generally understood, that it is absolutely impossible to prevent the ultimate deterioration which takes place in adrenalin and other suprarenal products. The change in a product like adrenalin is indicated by a pink color which grows increasingly more intense as deterioration develops. In the early stages, no appreciable loss of strength results, and it is not until the product actually turns brown, and begins to precipitate, that it loses much of its efficiency. Now this change of color, can be prevented by the use of a bleaching-agent like sodium sulphite, but the deterioration goes on just the same—the loss of strength is not prevented—it is simply concealed. The pharmacist who keeps his stock bottle (the opened-one especially) away from heat and alkaline reagents, and in such a way that dust, cotton or organic matter cannot gain access, will have a minimum of deterioration and will be able to dispense this product with entire satisfaction to his trade and himself.

Adrenalin in the presence of alkalis, even in high dilution, undergoes rapid deterioration, and when so prescribed by a physician, it is eminently proper that he be told of this change. A much disseminated error is, that adrenalin cannot be sterilized by heat. This became current about the time synthetic suprarenin was issued. The following tests bring out the facts regarding this point:

1. Ten cc. of 1:1000 solution, in a test tube closed with absorbent cotton, were immersed in boiling water for 15 minutes. At the end of this time the loss by exaporation was compensated, by the addition of distilled water,—careful testing showing the solution to be full 100 percent. The remaining solution was again immersed in the boiling water for a second period of 15 minutes, and the loss again corrected,—careful testing showed the product to be still 100 percent. This was repeated a third time and the adrenalin again gave a full 100 percent strength.

2. Twenty-five cc. of the adrenalin solution in a tightly-stoppered vial were immersed in boiling water for 15 minutes. This was repeated twice, and after each period of 15 minutes careful tests of strength were made. After the three heatings the adrenalin tested full 100 percent.

3. A very severe test—20 cc. in a small open-mouthed flask were boiled for five minutes. At the end of this time about 60 percent of the original solution had been evaporated but the volume was restored by the addition of distilled water and the solution then tested. This was repeated twice and tested after each addition. After the second boiling the adrenalin tested 100 percent and 90 percent after the third. This third test is a very severe one and is one which no careful pharmacist would resort to in the sterilization of his products, as such treatment would decompose ordinary alkaloidal solutions, such as morphine sulphate or atropine salts.

It will be seen from the above, that sterilization by the first two methods, are

quite practical, for periods from 15 to 30 minutes, or even longer, without impairing the activity of adrenalin, and that the pharmacist is able to dispense freshly sterilized solutions of this agent, when called upon to do so. One point in this connection should be noted,—it is advisable to sterilize only the quantity needed for immediate use.

THE GENERAL USE OF NEW SYNTHETICS.*

FRANKLIN M. APPLE, PHAR. D.

A careful search for the causes that lead to self medication by the laity with the newer synthetic remedies reveals the fact that a number of agencies are responsible for the practice.

The prime offenders in this respect are the manufacturers of the products termed patent chemicals, who ingeniously invent and apply to their goods easily pronounced names, which are not difficult for the consumers of their products to remember.

Ostensibly these euphonious names are adopted for the benefit of the medical practitioners, but their true object is to catch the eye and ear of the patient, who may soon dispense with the services of his physician, when he imagines he needs the chemical previously prescribed by his medical adviser; for it is not very difficult for a party of average intelligence to read a prescription for such a medicament, if it is clearly written by the prescriber.

If the physician announces his diagnosis of the case to his patient when handing him a prescription legibly written for one of these synthetic products, it is quite probable that the patient will associate the disease and the remedy together, with the result that he decides at a later date, when suffering with similar symptoms, that he need not consult his medical adviser, and he proceeds to medicate himself without the necessity of paying a fee for advice to take the formerly used chemical.

What has been stated concerning the possibilities of the patient associating the diagnosis with the remedy becomes an assured fact when the medical men prescribe verbally for the patient—whether it be by telephone or otherwise,—adding thereto explicit directions for the patient's benefit, in order to avoid writing a prescription, which is a very suicidal policy, indeed, for physicians to follow.

Experience has proven that the cause for some of this practice can be traced to the doors of the trained nurse, who, through a sense of friendly interest or vanity, usurps the role of the physician, and, in some instances, goes much farther in her support of the remedy by extolling its merits most heartily.

Those of our calling are, at times, found to be guilty of the same practices that some trained nurses follow—undoubtedly actuated by the same motives—with the result that the patients are unconsciously taught self-medication.

The patient becoming possessed of a (to him) wonderful new remedy proceeds

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