ments of chips, pebbles or other inert substances as to give him the stale, petrified tablets which, with time, have lost their potency. His patient has no respect for the preacher-practitioner combination, nor has he any enduring faith in the walking apothecary shop, hence, when he is really seriously ill, he will pay only for the straight article.

"Let the shoemaker stick to his last" is an old and true saying. If we would stop counter-prescribing, the pharmaceutical treatment of gonorrhœa and amenorrhœal (?) troubles, then we must give to the honest pharmacist what justly belongs to him. Pharmacists, as a class, are appreciative, and no physician ever patronized one and was not repaid two-fold. What we have said does not apply to the country practitioner, nor to the use of emergency drugs for night practice.

Sponges—Their Structure and Life History.

From a paper by Mrs. T. S. Wokes before the Phar. Students' Society of Liverpool.

It has now been definitely proved that *sponge is an animal, as it contains no* cellulose, and requires organic food. It is a compound body, and the sarcode, or living part of the sponge, appears to the eye as a soft gelatinous substance, which, however, is seen by the microscope to consist of an aggregation of simple animals possessing an endodermic, ectodermic and mesodermic layer. This living portion is supported on a horny skeleton (the commercial sponge) which is composed of a substance called keratode, spongin, or keratin, chemically allied to silk. Most sponges possess some kind of skeletal structures. They may be calcareous, or silicious, or horny scleres, the latter usually having the form of fibres, which sometimes enclose silicious needles (spicules) or foreign bodies. Foreign bodies sometimes form part, and sometimes the whole of the sponge skeleton. The spicules of calcareous sponges consist of carbonate of calcium. Each spicule, so far as its mineral component is concerned, is a single crystal. On the other hand, its general structure is organic. Its surfaces are curved, and it usually has the form of a cone or a combination of cones, each of which consists of concentric layers of calcite surrounding an axial fibre of organic matter. The spicule sheath consists of a thin outer layer of organic matter, and can be readily seen by removing the calcite with a weak acid. Spicules may be obtained by cutting sponge into thin slices and soaking it in liquor potassæ to dissolve the horny skeleton. Silicious spicules consist of colloid silica or opal. Spicules differ greatly in form, size, and use. They may be divided into two groups—minute flesh spicules, supporting a single cell, and larger or skeletal spicules contributing to the formation of skeleton. *In some sponges the scleres are simply* scattered through the mesoderm, and do not give rise to a continuous skeleton. British sponges contain a lot of silicious matter. The crater-like openings on the top of sponges are oscula, or exhalent apertures, and the very small holes in the sponge are the pores or inhalent apertures. The simplest sponge we know consists of a flask-shaped body with a large internal cavity and one crater-like opening at the top. It is covered with pores through which the water is absorbed, and ejected from the terminal crater. On dissecting it we find canals running through it from the surface to the central cavity. Here and there in these openings we find dilatations, each of which is lined with cells having hairs pointing outwards, called ciliated chambers. These are for breathing purposes, by directing the water into currents. The presence of one or more contractile vacuoles in flagellated or ciliated cells suggests that they expel water, urea and carbonic acid. Also this current provides food for the sponge in the form of particles of animal and vegetable matter, which are absorbed by the sarcode. The sarcode, or living outer and inner glutinous covering of the sponge skeleton, is possessed of a rudimentary nervous system, *which enables it to close the pores and* suspend the process of inhalation and inhibition.

Fresh individuals arise by a sexual germination, by fisson and by true sexual reproduction. In the latter case the new individuals are produced from the union of ova and spermatozoa, which develop from wandering amœboid cells in the mesoderm. The little germinule thus formed is a yellowish capsule covered with cilia, and is ejected from the oscula, floats away from the parent sponge and attaches itself to any suitable neighboring object, as a stone or rock, where it grows. Artificial fisson has been practised with success in the cultivation of sponges for the market by the Italian Government, but the experiment had to be abandoned on account of the hostility of the sponge fishers. Experiments were also made in Florida.

A description of foreign and British sponges followed, including Euplectella, the beautiful Venus' Flower Basket, and the Chinese glass-rope sponge, which has a long string of glass-like spicules attaching the sponge proper to the mud from which it grows. The British sponges are small, and, from a commercial point of view insignificant, but to the naturalist very interesting. The principal varieties are Chalia oculata, Halichondria ramosa, and the Halichondria panicea, or crumb-of-bread sponge.

Temperance and Health.

In view of the many schemes for temperance legislation which throng the political horizon, the report of the Collective Investigation Committee of the British Medical Association, on the subject of "Temperance and Health," possesses a *special interest for us. The committee* who undertook this work divided the subjects of their investigation into these classes, *i.e.*, total abstainers, habitually temperate, careless drinkers, and the decidedly intemperate. Resultant on their labors in this field of research, the committee give the following table, illustrative of the relative longevity of the persons thus classified :

Habitually temperate	62.13	years.
Careless drinkers	59.67	"
Free drinkers	57.59	"
Decidenly intemperate	52.03	"
Total abstainers	51.22	"

—*The Hospital.*

Solubility of Difficultly Soluble Salts.

A. F. Hollemann contributes a paper on this subject to the *Chemiker Zeitung*, from which we extract the following table, in which the last column indicates the parts of water (by weight) necessary to dissolve one part of the salt, and the second column the temperature centigrade necessary for the solution :

Barium sulphate	18.9	429.700
Barium sulphate	37.7	320.000
Strontium sulphate	16.1	10.000
Strontium sulphate	26.[illegible]	10.[illegible]30
Silver chloride	13.8	715.800
Silver chloride	26.5	384.100
Silver bromide	20.2	1.971.650
Silver bromide	*32.4*	*775.400*
Silver iodide	28.4	1.074.040
Silver iodide	40.4	420.260
Calcium bicarbonate	13.6	148.220
Calcium bicarbonate	24.6	124.400
Barium carbonate	8.8	64.070
Barium carbonate	24.2	45.566
Strontium carbonate	8.8	121.760
Strontium carbonate	24.3	91.408
Calcium carbonate	8.7	99.500
Calcium carbonate	23.8	80.040

Mayer's Reagent for Volumetric Alkaloidal Assay.

Mercuric chloride	13.546 grms.
Potass iodide	49.8 "
Distilled water	to 1,000 cc.

1 cc. of this solution precipitates, 0.0269 grm. aconitine, 0.0097 grm. atropine, 0.00698 grm. hyoscyamine, 0.0189 grm. emetine, 0.0125 grm. coniine, 0.00405 nicotine, 0.0167 grm. strychnine, 0.0197 grm. brucine, 0.0317 grm. colchicine, 0.02 grm. morphine, 0.0213 grm. narcotine, 0.0296 grm. veratrine, 0.01375 eserine.

Iodine and Starch.—The compound formed—if there be one formed at all—between iodine and starch has always been a subject of interest, and one little understood. Rouvier has just communicated a paper on the subject to the *Academie des Sciences*, of which the results are the following. (1.) The weight of starch remaining the same (as do all the other conditions of the experiments), if the quantity of iodine added be gradually increased, the quantity fixed also increases, until a maximum of 19.6 per cent. is reached. Whatever the amount of iodine used in excess is, no greater quantity than this is taken up by the starch. This corresponds to the formula $(C_6H_{10}O_5)_{16}I_5$. (2.) If weight of iodine and starch be kept constant, as also the other conditions, but *volume of liquid used increased, the iodine* fixed decreased, unless excess of iodine is used, when dilution scarcely alters percentage (19.6) that is taken up.—*Comp. Rend.*