firmly on the anterior surface of the superior maxillary bone at a point directly above the root of the second premolar tooth. The light rays now penetrate the thin anterior wall of the antrum, traverse the antral box, and emerge freely through the likewise thin floor of the orbit, illuminating, under normal conditions, the elliptic area bounded by the infra-orbital margin below and the eyeball above. The pupil of the eye will also show a red reflex in health. This position of the lamp has distinct advantages over the mouth position, as the rays of light pass through no tissue other than the walls of the antrum, thus eliminating the possibility of disease of other structures disturbing the picture. The walls traversed by the light when in this position are the thinner walls of the antrum, and they vary but little in thickness in different individuals, whereas all other walls may vary greatly, often making transillumination uncertain and indistinct. The presence of artificial denture does not interfere with this method.

The illumination of the frontal sinus is best accomplished by placing the lamp with the fenestrated cap well underneath the overhanging supra-orbital margin just external to the nasal process of the frontal bone and in contact with the roof of the orbit. This gives a brilliant and extensive illumination of the frontal sinus in health, so that the edges of the sinus in many cases may be perfectly outlined; indeed, often the location of partitions may be seen. Here, again, the light traverses the thin floor of the frontal sinus, and is not influenced by the varying thickness of the external table of the skull.

This instrument is a valuable mastoid illuminator. Its small size permits it to be passed into the osseous external auditory meatus of most persons, and by turning the illuminating window toward the posterior wall the mastoid cells are brilliantly illuminated. When the auditory meatus is small, the open end cap is used, allowing only the tip of the lamp to project beyond its free border in order that the meatus may be snugly fitted, and preventing return rays of light from obscuring the picture. It may be used also by placing the lamp, with the rubber cap projecting slightly beyond it, against the external surface of the mastoid process and viewing the light that passes through the posterior osseous wall of the external auditory meatus.

The presence or absence of pathologic changes in the lacrimal sac may be elicited by this illuminator. Without the cap the lamp is passed into the nostril until it rests on the anterior end of the middle turbinate. In the presence of disease of the sac, a shadow is cast through the skin surface over the diseased area.

New transilluminator.

Likewise the lamp may be used in some cases to indicate disease of the anterior and middle ethmoidal cells, particularly in cases in which, with the added space secured by the use of cocaine and epinephrin, the lamp may be passed between the middle turbinate and the septum. Disease of these structures is indicated by a shadow at the nasal portion of the orbit, and loss of the pupillary reflex.

This instrument is of value as a nasal diagnostic lamp. It is inserted into one nostril, and the interior of the nasal chambers of the other side is viewed through the vestibule opened by a nasal speculum. An unusual view of the interior of the nose may thus be obtained without the use of a head mirror.

This instrument is conveniently carried, and is ideal for bedside use and in homes where other means of illumination are not available. On account of its simplicity and its practicability, it is an instrument that will appeal to the general practitioner as well as the specialist.

Marshall Field Annex Building.

NASAL SEPTUM CLAMP OR SPLINT

TO BE USED AFTER SUBMUCOUS RESECTIONS IN PLACE OF PACKING

FRANK C. TODD, M.D., MINNEAPOLIS

The illustration represents a nasal septum clamp or splint which I have been using for the past year following submucous resection of the septum.

The clamp is placed in the nose immediately after the operation, and left in place for one or two days. No packing is used whatever, even though turbinates have been operated on at the same time. I find there is less bleeding than was the case when packing was used.

Nasal septum clamp or splint.

This device was shown before the Section on Laryngology, Otology and Rhinology at the San Francisco Session. It is made of German silver, so constructed that when inserted, with a wing on each side of the septum, a slight spring action of the two wings

holds the mucous membranes together. The clamp is much more comfortable than packing, and is more easily applied and removed.

My invariable custom, as was the case preceding the use of these clamps, is to keep the patient in the hospital at least two days after the operation.

These clamps come in two sizes, but the smaller size is rarely used. They are manufactured by V. Mueller & Co.

A SIMPLE METHOD OF QUANTITATIVE DETERMINATION OF COMPLEMENT FIXATION

J. O. HIRSCHFELDER, M.D., San Francisco

In the complement fixation test the purpose is to determine the presence or absence in the serum to be tested of a body which on uniting with the antigen will prevent the complement from combining with the lysin to dissolve the blood cells.

In the antigen we have a complement fixing body (*A*) and a substance (*B*) which unites with the antibody in the serum to form a complement fixing substance. Similarly, in the serum we have a complement fixing body (*C*) and the antibody (*D*). The problem is to find the presence or absence of the antigenic substance and the specific antibody (*B* plus *D*) which on uniting fix the complement. If we wish to know how much of the latter combination is present, it is evident that we must first determine the amount of the anticomplementary action of the antigen and of the serum alone, as these vary.

The complement present in the serum of different guinea-pigs is highly variable, and, furthermore, rapidly diminishes on standing, even when kept in the ice chest. It is a simple matter, however, to determine the anticomplementary action simultaneously of the antigen (*A*), serum (*C*) and of the two mixed (*B* plus *D*).

In practice, the method used is the following: (1) Increasing quantities of complement; (2) increasing quantities of complement with a measured quantity of serum; (3) increasing quantities of complement with a measured quantity of antigen, and (4) increasing quantities of complement with the quantities of serum and antigen used in 2 and 3 mixed are simultaneously incubated at 37 C. (98.6 F.) for one hour. To each of these tubes the same quantity of cells and lysin are then added, and all are incubated for two hours. At the end of that time they are read, and the least amount of complement necessary to dissolve the cells (termed the system) is determined.

The amount of complement necessary to dissolve the cells in presence of the serum minus the amount of the system

gives the anticomplementary value of the serum (*C*), and in the same manner the anticomplementary value of the antigen (*A*) is determined.

To measure the anticomplementary value of the serum plus antigen, that is, complement binding value of antigen and serum mixed (*B* plus *D*) from the quantity of complement necessary to dissolve the cells, the amount of the system plus the anticomplementary values of Serum *C* and Antigen *A* alone are deducted. This gives the value of the mixture in terms of complement. As the value of the complement varies and the number of cells used from day to day may be different, the calculation can be made in percentages of the amount of complement used in the system, this being the complementary unit.

By taking an excess of antigen, the complementary value of the antibody in the serum tested may be readily calculated, and similarly the complementary value of the antigen by using an excess of the specific serum. If a large number of tests are made with gradually increasing quantities of complement, the titration may be made as accurately as may be desired.

By employing this method it will not be possible to get different reports from different laboratories of the Wassermann reaction with the same blood, as seems to be frequently the case now.

The antibodies of the same patient may be compared from time to time. It will probably be of value to the physician to know whether the antibodies in the blood of his patient are increasing or diminishing.

275 Post Street.

Therapeutics

MEDICATION

(Continued from page 1307)

Let Us Aim to Improve our Medicinal Treatment of Disease

Toward that end, will you prescribe the pills made by a Detroit manufacturer?

CACTUS COMPOUND PILLS (HEART TONIC)

Each pill is said to contain:

"Cactus grandiflorus.....	1/2 gr.
Sparteine sulphate.....	1/40 gr.
Digitalin, pure (German).....	1/125 gr.
Strychnine sulphate.....	1/500 gr.
Glonoin (nitroglycerin).....	1/500 gr.
Strophanthin	1/5000 gr."

1. There is no authentic proof that cactus has any physiologic, pharmacologic or clinical activity; on the contrary, exhaustive investigations have established its worthlessness.

2. The U. S. P. dose of spartein sulphate is 1/6 grain. Even if spartein could be considered as a cardiac tonic, which is doubtful, a dose of 1/40 grain would be too small to have any activity whatever.

3. The dose of pure German digitalin is stated by some authorities to be from 1/60 to 1/30 grain; therefore, 1/125 grain is a small dose. This digitalin, which is probably a mixture of glucosids, does not represent the whole activity of digitalis, and has not been found to be as valuable in cardiac insufficiency as is digitalis.

4. The U. S. P. dose of strychnin sulphate is 1/60 grain. Of course, 1/40 and 1/30 grain are often considered tonic and stimulant doses, and in emergencies much larger doses are often administered. Therefore, 1/500 grain of strychnin sulphate would be almost as negligible as a dose of charcoal or oyster shell.

5. Granted that this unstable drug is still present when the pill reaches the patient, 1/500 grain of nitroglycerin is a small dose. Its activity as a vasodilator, not as a cardiac tonic, especially when offered in a pill form for slow solubility and therefore slow absorption, would be negligible.

6. The strophanthin of the pharmacopeia is a glucosid, and the dose is 1/200 grain. If the foregoing is the crystalline strophanthin of Thom, the dose is about 1/400 grain. A dose of strophanthin of 1/5000 grain is ridiculously small. In the next place, strophanthin is of no value as a cardiac tonic in heart weakness, when administered by mouth.

The combination is absolute nonsense. Lines may be drawn through every one of the ingredients except digitalin, and the treatment then becomes one of digitalis. The selling name of "Cactus Compound Pills" is a misnomer, as the only activity of the pill would be that of a small dose of some digitalis glucosids. If it were argued that it was intended to give this small dose frequently, it should be remembered that digitalis acts very slowly, and the full physiologic effect would not be reached from a single dose until after twelve hours, at least, and sometimes not until after twenty-four. Digitalis also is slowly excreted. Therefore, to give digitalis frequently for any length of time is inexcusable medication. For the nitroglycerin to be effective, it should be given in a small dose frequently, as every two or three hours. Such frequent dosage would be inexcusable for the digitalin.

We will leave it to the mathematician and the pharmacologist to decide how many and how frequent doses of 1/500 grain of strychnin it would take for an adult to receive cardiac stimulation from it, and then to decide how much digitalin was in the system.

This preparation is an illustration of how inert or worthless drugs are perpetuated. At one time it was thought that cactus had a therapeutic value; during that time many "specialties" and proprietaries bearing its name were placed on the market. These continue to be sold, although the drug is now known to be worthless.

(To be continued)

The Increase of Lunacy.—The board of control of lunacy in England has recently issued a report containing some very striking charts on the increase of lunacy. They show that since the year 1859 a marked increase in lunacy has occurred in all classes of the community, but especially in the pauper classes. The first chart deals with the total number of insane persons in England and Wales reported to be under care on January 1 in each year. Thus, in 1859 there were 36,480 persons of all classes under control; in 1899, 100,000, and in 1915, 140,466. In the same period private lunatics rose from 4,397 to 9,968. The second chart deals with the comparative variations in the proportion of the insane in England and Wales to the total population, and shows that while in 1859 the ratio was 18.5 per 10,000, all classes, it had risen in 1915 to 37.7. But these figures cannot be taken absolutely, for the diagnosis of lunacy is much more accurate today than at the beginning of the period mentioned, and many cases are diagnosed and placed under control which formerly would have been ignored. However, the fact that there has been an increase is not open to doubt. As to its cause, many theories have been advanced and none is entirely satisfactory. Among them are syphilis, alcohol, tobacco, sexual excess, overstrain and overexcitement. The latest theory is that of Dr. Mercier, the well known alienist, who considers that insanity is sometimes due to excessive indulgence in some foodstuff, such as fat or sugar.