pottery was found. This consisted of a number of vases and flattened dishes of quaint and graceful shapes decorated with elaborate patterns in red. These are admirably depicted in the plates accompanying the memoir and indicate a very degree of art in the part of their designers. F. A. L.

RECENT PROGRESS IN THE EXAMINATION OF FOODS AND DRUGS.

NEW PLANTS AND DRUGS.

THEODORE PECKOLT has been continuing his work upon the medicinal and economical plants of Brazil (see *Berichte d. deutsch Pharm. Ges.*). Duyk likewise continues his communications upon Mexican drugs (*Bull. Soc. Pharm. Brux.*, XLIII., and *Bull. Comm.*, XXVIII.). In the consideration of the useful plants of Mexico, J. N. Rose (contribution, U. S. Nat. Herbarium, V., No. IV) treats of the plants of Mexico which are employed for making beverages, seasoning, flavoring, soap, tanning, dyeing as well as those of a strictly medicinal application. J. S. Ward has described some new West African plants in *Pharm. Jour.*, 1900. Several Indian plants have been examined by S. Camphuijo (see *Nederl. Tidjschr. v. Pharm.*, 1899). The arrow poisons of Wagogos are obtained, according to Schellman, by boiling the bark of two trees of the N. O. Euphorbiaceae. *Pilocarpus racemosus*, of the French Antilles, is given by Rocher as a new source of Jaborandi. The leaves contain 0.6 per cent. of pilocarpine and 0.4 per cent. of jaborine. David Hooper has shown that the ancient eastern medicine, *Akakia*, is an astringent extract of an acacia. Schumann has added to our knowledge of the kola exported between Senegal and Angola. All kola seeds are wrapped with the leaves of *Cola cordifolia*. The large seed (nguru) is obtained from *Cola vera;* whereas the small seed (kotofo) is the product of *C. acuminata*. The natives of Bali also employ the seeds of *C. lepidota* and *C. anomala*. According to the investigations of Hendrickx and Coremans, the leaves of *Theobroma kalagua* may be employed as substitutes for kola and cacao.

H. Moeller does not consider that *Rheum Franzenbachii* furnishes any of the commercial rhubarb. Ergot from rice, cultivated by the Indians in Northern Wisconsin, has been examined by R. H. Denniston. Heckel and Schlagdenhauffen find quassin and saponin in the seeds of *Brucea Sumatrana* (N. O. Simarubaceae). These seeds known as kosam seeds are used in China and India for dysentery. Bertrand and Physalix believe the activity to be due to a glucoside which they call kosamin. A new rubber plant of Lagos (*Fantumnia elastica*) is described by Staff. *F. africana* (syn. *Kicksia africana*) does not appear to yield any rubber.

Cathaedulis contains according to Schaer large quantities of caoutchouc, an ethereal oil, alkaloid and tannin. Large edible tubers, called 'native yams' are yielded by *Parsonia paddisoni* (N. O. Apocynaceae). Piralahy rubber (Madagascar) is the product of *Landolphia perieri* H. Jumell. Altamassano has extracted from Coniza, one of the Mexican compositæ, a glucoside which he calls lennesine. Several pecies of Polygala (*P. violacea* St. Hil. and *P. caroeasana* H. B. K.), have been found by Dethan in commercial ipecacuanha. Small jaborandi leaves have been utilized as an adulterant in coca. A new spurious senna has been described by Greenish while Micko has discovered another false cinnamon bark. This is yielded by an unknown species of Cinnamomum, but does not contain the aromatic cinnamon oil.

PLANT CONSTITUENTS.

The investigations of Hesse on the Solanaceous alkaloids show that the active principles of Hyoscyamus are chiefly hyoscyamin with some atropin and hyoscin; while Belladonna root contains an excess of atropine; and Scopola rhizome contains chiefly hyoscin with some atrosin. The two last mentioned bases are found in the scopolamin of commerce.

Hesse finds as a result of an investigation of the various commercial rhubarbs that the Chinese rhubarb contains chrysophanic acid, emodin, rhabarberon and rhein; Austrian rhubarb (*Rheum rhaponticum*) and English rhubarb (*R. palmatum*) contain chrysophanic acid and rhapontin; *Rumex nepalensis* and *R. palustris* contain chrysophanic acid and nepodin; *Rumex obtusifolia* contains chrysophanic acid, nepodin and lopodin.

Tschirch holds that the emodin of aloes and frangula are isomeric and that they can be distinguished by certain color reactions as well as by other tests as shown by the investigations of Oesterle. Tschirch further holds that all methylanthraquinone derivatives, containing one or more oxy-groups, are purgative. The emodins, being tri-oxy-compounds, seem to be the most active. It is suggested that these oxy-derivatives of methylanthraquinone will eventually replace the drugs as aloes, rhuharb, etc., which contain them.

According to H. A. D. Jowett the following alkaloids are present in Jaborandi: pilocarpine, iso-pilocarpine (pilocarpidine of Petit and Polonowski), pilocarpidine (Harnack and Merck). Jaborine does not appear to be present in jaborine leaves and the commercial jaborine is said to be a mixture of these three alkaloids. The alkaloid in Mandragora root is, according to Wentzel, hyoscine ($C_{17}H_{19}NO_3$). In an investigation of the constituents of the wall-flower of the gardens, Reeb has isolated a principle (cheiranthin) resembling digitalis in its physiological action and has found in the seeds an alkaloid (cheirinine) which resembles quinine in its properties. The active principle in Capsicum has been further investigated by Micko, who insists that it is odorless and that the vanilla-like odor ascribed to it by Mörbitz is due to the action of reagents employed. An emetic principle has been isolated by Herberger from melon root and other Cucurbitaceae. The toxic effects of tobacco is ascribed by Thoms to a phenol-like body resembling creosote. A new oily alkaloid ($C_9H_{18}NO$), which is miscible with water, has been isolated by A. Piccinni from pomegranate bark. The daturine in the seeds of *Datura stramonium* L. is considered by J. Thomann to be in the nature of a reserve product. The flowers of *Datura alba* contain hyoscine which Hesse says may supersede the mixture known as scopolamine salt. Investigations seem to show that there is no caffeine in the leaves of any species of Psathura (N. O. Rubiaceae).

Pommerhue has succeeded in making a number of crystalline compounds of the alkaloid, damascenin, extracted by Schneider from *Nigella damascena*. It has been found by H. Meyer that anemonin forms compounds of the maleic and fumaric types. According to Hausman, aspidin is found in *Aspidium spinulosum*, whereas filicic acid is present in *Aspidium filix-mas* and *Athyrium filix fœmina*. A crystalline non-glucosidal principle (gossypol) obobtained from cotton seeds has been examined by Marchlewski. The bitter principle of *Plumiera lancifolia*, investigated by Boorsma and Merck with discordant results, is shown by Franchimont to vary in its M. P., according to the amount of water of crystallization that it possesses. According to Léger, nataloin and homonataloin give a green coloration with sulphuric acid and manganese dioxide or potassium di-chromate; and a violet color with a solution of soda containing ammonium persulphate. The investigations of Busse seem to indicate that in the unripe vanilla fruit there exists a glucoside, which on treatment with ferments (emulsin) or mineral acids, yields vanillin. The arrow poison of Wakamba (German East Africa) appears to be a glucoside and resembles Arnaud's ouabain. According to the investigations of Hilger, while the coloring principle of saffron is a glucoside, the glucoside, picrocrocin (or saffron bitter) is really a mixture of coloring principles, one of which resembles carotin. Malabar kino has been shown by David Hooper to possess in dry substance over 90 per cent. of tannin. *Hymeneo coubaril* contains 23.8 per cent. catechutannic acid and 2.7 per cent. of catechin. A. G. Perkin has been continuing his studies on the tannin and allied coloring principles of a number of plants. A yellow coloring principle has been isolated by Adrian and Trillat from the digitalin obtained from *Digitalis lutea*. The authors believe it to be different from the digito-flavone of Fleischer. The green and red pigments of *Amanita muscaria* have been subjected to a chemical examination by A. B. Griffiths. A. Nestler believes that the change in color in the ripening of Juniper berries is due to a fungus. The investigations of Charabot on the formation of lavender oil seems to indicate that the oil contained in the flower buds and mature flowers is richer in esters; whereas in the withered flowers it is the alcohols which preponderate. According to G. Spampani, the oil in olive is produced in the

cells of the mesocarp in particular, during the activity of the protoplasm and not on account of the degeneration of the latter. The malic acid in the berries of *Hippophæ rhamnoides* is identical with the acid in *Pyrus aucuparia*. Greshoff has investigated the Pisang wax, the product of an unknown plant of Lower India. The carbohydrates of Tragacanth have been re-investigated by Widstoc and Tollens. Xylose was obtained from the white and arabinose from the brown varieties respectively. Dulcite and not mannite has been found by Hoehnel in *Euonymus atropurpureus*. The same carbohydrate is present in *E. Europæus*.

According to the investigations of J. Grüss, the enzyme in *Penicillium glaucum* acts less powerfully on starch or reserve cellulose, but more energetically on cane sugar, than malt diastase. Semnase, the ferment in leguminous seeds possessing a horny albumin, differs from malt diastase in that its action is less active on starch, but more active on the albumin of the locust bean than diastase. An enzyme (hadromase) has been found by Marshall Ward in the fungi (*Pleurotus pulmonarius* and *Merulius lachrymans*) which destroys the lignified cells of timbers.

Henry Kraemer.
Philadelphia College of Pharmacy.

THE PRESIDENT'S ADDRESS BEFORE THE SOCIETY OF CHEMICAL INDUSTRY.

The annual general meeting of the Society of Chemical Industry took place on July 18th in the lecture theater of the Royal Institution, London. After the transaction of some formal business, including the presentation of the council's report, which showed that the society has now 3459 members, the president, Professsor C. F. Chandler, of Columbia University, delivered his address. According to the abstract in the London *Times* he said that on looking over the addresses of past presidents he found that almost every chemical topic—theoretical, practical and historical—had already been dealt with, and his only hope of being able to say anything that was not already thoroughly familiar rested in the presentation of matters purely American. Treating, first, of chemical and technical education in the United States, he described its beginnings and development, paying special attention to the Columbia School of Mines, afterwards merged in the Columbia University. He ascribed the prompt success of this school to the fact that a fixed and definite progressive course of study was offered for each profession, from which no deviation was allowed. The faculty decided what subjects were necessary for a student to pursue in order to qualify him for his profession, and did not permit him to select the studies which he happened to find most interesting. While Columbia was developing her system of professional education in the applied sciences many other institutions were doing the same. The most striking feature of the American system of higher and technical education was to be found in the fact that most of the institutions had been founded and maintained by liberal gifts of money from wealthy citizens, in many cases made during the donor's lifetime, and that only a small number had been endowed or supported by the public funds. Thus in 1899 over 33 million dollars were given in this way, the largest sum being the 15 million dollars given by Mrs. Leland Stanford, together with large tracts of land, to which as yet no precise value could be attached, to complete the endowment of the Leland Stanford Junior University. There were in all 174 donors, averaging $190,000 each.

Schools of chemistry were now so numerous in the United States that it was almost impossible to state their exact number, but he was safe in saying it was more than 100. In all there were 480 universities and colleges, and 43 technical schools not included in this list. In 1899 it was stated that there were 9784 students pursuing professional courses in the schools of engineering, while 1487 graduated that year, receiving the degree of civil, mechanical, electrical or mining engineer. No one could estimate the value to the industrial development of the United States of such an army of thoroughly trained engineers and chemists. Professor Chandler next referred to what had been done by the chemical societies in benefiting and consolidating the profession in America, and went on to speak about the original investigation carried on by American chemists. He said he