The most recent investigators, Wood, Spivey and Easterfield (1896), have failed to obtained any alkaloid from charas, and the bulk of evidence is therefore against the view that the effects of cannabis are due to an alkaloidal principle. In 1897 Jahns obtained a crystalline base which he subsequently recognized as choline. He pointed out that chemically this body would explain the alkaloidal base obtained by previous observers, but it differs in crystalline form and solubility in ether from Hay's tetanocannabine; physiologically, also, their action is different.

Of the more recent investigators, Warden and Waddell seem to have begun upon the right lines. They argued that, as many of those addicted to the hasheesh form of intemperance obtained the intoxicating effects by smoking the plant in a pipe, it was to be expected that destructive distillation of the freshly prepared resin might yield up the active principle. They therefore made an alcoholic extract of the plant, added excess of caustic potash, and distilled. An amber-colored oil came over, which, by exposure to the air or by the action of alkalies, rapidly assumed a dark brown color. The oil contained ammonia, phenol, and other products of destructive distillation, and was "devoid of narcotic and irritant properties." A drachm administered to a cat produced no sensible effect. Leib Lapin (1894) isolated a substance which he termed *cannabindon*, and this appears to possess the physiological action of fresh cannabis preparations. He obtained it by warming the plant with milk of lime and extracting with ether. The ethereal extract he treated successively with acetic ether, alcohol, petroleum ether (twice), and water, the precipitate being rejected each time. The second and third fraction obtained by precipitating with water contained impure cannabindon; this he subsequently purified. Last year, Cowan Lees expressed a belief that watery extracts contained some active ingredient of cannabis.

As we should expect from its method of preparation, says Mr. Marshall, the resin is extremely stable. It yields monoacetyl and monobenzoyl derivatives and is unacted upon by alcoholic potash, and, below 150° C., hydriodic acid and phosphorus. It is insoluble in water, but soluble in alcohol, ether, benzine, and organic solvents generally. It appears to be the active constituent of the drug, and the authors have succeeded in isolating it from several cannabis preparations in the market—viz., from Smith's cannabine, eighty per cent.; Merck's cannabinon, fifty per cent.; Merck's ethereal extract, twenty-six per cent., and Merck's cannabis resin, twenty per cent. As the compound contains at least one hydroxyl group, the authors recommend the same *cannabinol* for it.

As previously mentioned, all samples of charas are not of the same quality. From a second sample of this substance, undoubtedly inferior to the first, Easterfield and Wood were only able to extract fifteen per cent. of cannabinol. Another sample of charas sent to Mr. Marshall by his friend, Surgeon-Lieutenant John Stephenson, I.M.S., and obtained in the cantonments at Peshawar, was of intermediate quality. Various other preparations of cannabis indica (Merck's, Bombelon's, Denzel's, Gastinelli's, etc.) are known, and even largely used, but as these have not added much to our knowledge of the chemistry of this body, Mr. Marshall does not mention them further. By oxidizing cannabis resin with nitric acid, Bolas and Francis (1868) obtained a crystalline substance, oxycannabine ($C_{20}H_{20}N_2O_7$), but the physiological action of this compound was not determined. Fluckiger failed to obtain it.

The author states that the substances isolated by Wood, Spivey and Easterfield were sent to him for a pharmacological investigation, which